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FINAL

SITE INVESTIGATION REPORT FOR UNDERGROUND STORAGE TANK SITE 16144

Revision 0
September 19, 2005

MARINE CORPS BASE
CAMP PENDLETON, CALIFORNIA

DCN: SES-TECH-05-0125

Prepared by:

SES-TECH
18000 International Boulevard, Suite 1009
Seattle, WA 98188

Mark Cutler
Project Manager, P.G.

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ABBREVIATIONS AND ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
amsl	above mean sea level
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CAP	Corrective Action Plan
DEH	Department of Environmental Health
EO	ether oxygenates
EPA	U.S. Environmental Protection Agency
LCS	laboratory control sample
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MCB	Marine Corps Base
MS	matrix spike
MSD	matrix spike duplicate
MTBE	methyl tert-butyl ether
PAH	polynuclear aromatic hydrocarbon
QC	quality control
RL	reporting levels
RPD	relative percent difference
RWQCB	Regional Water Quality Control Board
SES-TECH	Sealaska Environmental Services LLC and Tetra Tech EC, Inc.
SPLP	synthetic precipitation leaching procedure
TPH-d	total petroleum hydrocarbons quantified as diesel
TPH-g	total petroleum hydrocarbons quantified as gasoline
TRPH	total recoverable petroleum hydrocarbons
TtEC	Tetra Tech EC, Inc.
TtFW	Tetra Tech FW, Inc.
UST	underground storage tank
VOC	volatile organic compound

1.0 INTRODUCTION

This Site Investigation Report summarizes the results of site investigation activities conducted at Underground Storage Tank (UST) Site 16144 located at Marine Corps Base (MCB) Camp Pendleton, California (Figure 1-1). The site investigation was completed pursuant to a Work Plan that was reviewed and found acceptable by the California Regional Water Quality Control Board (RWQCB), San Diego Region in a letter dated February 2, 2005 (reference SMC: 50-0633.05:peurp). This report was prepared by SES-TECH, a joint venture between Sealaska Environmental Services LLC and Tetra Tech EC, Inc. (TtEC), on behalf of the United States Department of the Navy, Naval Facilities Engineering Command, Southwest, under Contract No. N68711-04-D-1104, Contract Task Order No. 0003.

UST Site 16144 is regulated under the Title 22 California Code of Regulations, Division 4.5, Chapter 14, Article 6, and the California Health and Safety Code, Sections 25187 through 25189, which require those responsible for the release of hazardous substances to take necessary corrective actions to remedy the release. The document guiding the investigation at the site is the San Diego County Land and Water Quality Division *Site Assessment and Mitigation Manual 2005* [Department of Environmental Health (DEH), 2005]. The RWQCB is the lead regulatory agency overseeing environmental activities at the site.

1.1 OBJECTIVES AND SCOPE

Results of an Environmental Site Assessment completed in 2000 indicated that total petroleum hydrocarbons quantified as diesel (TPH-d) were present in shallow soils (less than approximately 20 feet deep), in deep soils (between approximately 30 to 40 feet deep), and in groundwater (Ninyo and Moore, 2000). Two groundwater monitoring wells were installed during the site assessment, and during sampling, one of the wells was found to be dry. It was concluded that the deep soil results were potentially not related to the site. Furthermore, due to the dry well, groundwater data were inadequate to determine quality and gradient. Thus, the primary objectives of this additional site investigation are to determine if the deeper TPH-d contamination is related to the site, and install additional monitoring wells to determine groundwater quality and gradient.

The general scope of work included:

- Drill and sample four soil borings to further evaluate the horizontal and vertical extent of TPH-d-impacted soil.
- Drill a shallow boring near a water line to determine if the line is leaking.
- Collect surface soil samples along a steep slope adjacent to the site to determine if contamination is migrating to the ground surface.
- Install and sample three additional groundwater monitoring wells.

1.2 SITE IDENTIFICATION

The following is a list of site identification data:

Site Address:	UST Site 16144, 16 Area, MCB Camp Pendleton, California 92055
Facility Name:	Administration and General Storage Building
DES Case No.	H05939-031
RWQCB Case No.	9UT631
Property Owner:	United States Marine Corps
Contact Person:	Mr. Chet Storrs Remediation Branch Manager Assistant Chief of Staff, Environmental Security Marine Corps Base, Building 22165 Camp Pendleton, California 92055-5008 (760) 725-9774
Remedial Project Manager:	Mr. Bipin Patel Naval Facilities Engineering Command, Southwest 1220 Pacific Highway San Diego, California 92132-5190 (619) 532-4814
Responsible Party:	United States Marine Corps

1.3 SITE DESCRIPTION

The site is located behind an Administration/General Storage Building located in the 16 Area, MCB Camp Pendleton (Figure 1-2). The site is situated along the edge of the top of the east rim of Windmill Canyon at an approximate elevation of 400 feet above mean sea level. Immediately to the west of the site, the canyon wall begins sloping steeply to the canyon floor, approximately 280 feet below.

Two 1,000-gallon concrete reinforced USTs were installed behind Building 16144 in 1943. The tanks were used to supply diesel fuel to boilers in the facility for heating. The USTs were each 7 feet in height and 6 feet in diameter.

2.0 SITE BACKGROUND

The following sections present a summary of previous site investigations and a general summary of site geology and hydrogeology.

2.1 PREVIOUS SITE ACTIVITIES

An initial site assessment was conducted between December 1991 and February 1992 (Ninyo and Moore, 2000). Four borings (B16144-1 through -4) were drilled to 19 feet below ground surface (bgs), and one boring (B16144-6), located to the west of the tank cavity near the top of the canyon wall, was drilled to 50 feet bgs. Groundwater was encountered at approximately 45.5 feet bgs in boring B16144-6, but was not sampled. Soil samples were collected every 5 feet and analyzed for total recoverable petroleum hydrocarbons (TRPH) by U.S. Environmental Protection Agency (EPA) Method 418.1. Results indicated that TRPH was present in soil to the west of the tank cavity at a concentration up to 7,338 milligrams per kilogram (mg/kg) and up to 30 feet bgs. Results of the sampling are summarized on Table 2-1 and Figure 2-1.

In 1996, both USTs and all ancillary piping were removed from the site by the Navy Public Works Center (Ninyo and Moore, 2000). The UST excavation was approximately 10 feet by 12 feet, and 10 feet in depth. Groundwater was not encountered during tank removal activities. Following UST removal, three soil samples were collected from the excavation bottom (Figure 2-1). Each sample was analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-g) and TPH-d. TPH-d was detected in all three samples at concentrations ranging from 370 mg/kg to 8,900 mg/kg (Table 2-1 and Figure 2-1), and TPH-g was not detected.

In 2000, an Environmental Site Assessment was conducted to further evaluate the nature and extent of diesel contamination (Ninyo and Moore, 2000). Nine soil borings (16144-B1 through -B9) were drilled to depths up to 70 feet bgs in the vicinity of the former UST. Boring 16144-B1 was located in the former tank cavity to assess the vertical extent of diesel in soil, and borings 16144-B2 through -B9 were located to further assess the lateral extent of contamination.

Groundwater grab samples (designated GW) were collected when groundwater was encountered. Groundwater was encountered in the four borings located near the western edge of the site between the former tank cavity and the edge of Windmill Canyon between approximately 40 and 50 feet bgs. Despite leaving the other five borings [which were all drilled between 50 and 70 feet bgs (B1, B5, B6, B8, and B9)] open for approximately 28 days, groundwater was not encountered in these borings.

Borings B3 and B7 were subsequently converted to groundwater monitoring wells MW1 and MW2, respectively. Groundwater was encountered at 43.6 feet bgs in MW1, and, after installing

well MW2 to 55 feet bgs, it was found to be dry. Light non-aqueous phase liquid was not observed at the site.

During drilling of the soil borings, soil samples were collected every 2.5 to 5 feet and analyzed for TPH-d and TPH-g. One sample from each of the borings that detected TPH-d (B1, B3, and B4) was also analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX), methyl tert-butyl ether (MTBE), other ether oxygenates (EO) (tert-butyl alcohol, di-isopropyl ether, ethyl tert-butyl ether, and tert-amyl methyl ether), polynuclear aromatic hydrocarbons (PAHs), and Synthetic Precipitation Leaching Procedure (SPLP)/TPH-d, SPLP/BTEX/MTBE, SPLP/EO, and SPLP/PAHs.

Soil sample results indicated that TPH-d was detected down to 10 feet beneath the former tank cavity (up to 6,200 mg/kg). Contamination was not detected below the former tank cavity between 10 and 70 feet bgs. TPH-d was also detected to the southwest of the former tank cavity between 30 and 40 feet bgs in boring B3, and at 5 feet and at 35 feet bgs in boring B4 (Figure 2-1). All other soil samples were non-detect for TPH-d. Relatively low levels of BTEX, and some PAHs (acenaphthene, fluorene, naphthalene, and phenanthrene) were reported in the samples selected for additional analyses (one sample from each boring that encountered TPH-d). Results of all soil sample analyses are included on Table 2-2, and the TPH-d results are also summarized on Figure 2-1.

Groundwater grab samples were collected during drilling from borings B2, B3, B4, and B7, and a groundwater sample was collected from MW1 (boring B3) after a permanent monitoring well was installed. TPH-d was detected in the grab sample from B2 at 0.4 milligrams per liter (mg/L), from B3 at 57 mg/L, and from B4 at 1.3 mg/L (Table 2-3). The groundwater sample from monitoring well MW1 (boring B3) contained TPH-d at 0.55 mg/L (Table 2-3). The groundwater sample from well MW1 was also analyzed for volatile organic compounds (VOCs) (including BTEX, MTBE, and EOs) and PAHs. VOCs and PAHs were not detected in MW1.

2.2 GEOLOGY AND HYDROGEOLOGY

The site is located in the San Luis Rey River-Windmill Canyon watershed. An unnamed ephemeral stream is located approximately 460 feet west of the site at the bottom of Windmill Canyon. The stream flows in a southerly direction, discharges into Windmill Lake and the San Luis Rey River, and has designated beneficial uses of agricultural supply, industrial service supply, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. The nearest major surface water body is Lake O'Neill, located in a different watershed approximately 2 miles north of the site.

Based on available geologic and hydrogeologic literature, and observations during site investigation activities, the site is underlain by fill, the Tertiary-aged Santiago Formation, and Cretaceous-aged decomposed granite. The fill extends from near surface to approximately 7 feet

bgs and generally consisted of gray to brown silty sand. The Santiago Formation is present between approximately 7 feet bgs and 43 to 53 feet bgs, and typically consists of gray to greenish-gray siltstone to sandstone. The top of the decomposed granite was typically encountered between approximately 43 to 53 feet bgs.

The site is within the Mission Hydrologic Subarea (903.11) within the Lower San Luis Hydrologic Area of the San Luis Rey Hydrologic Unit. The hydrologic area has designated groundwater beneficial uses for municipal, agricultural, and industrial service supply. Based on Geographical Information System data provided by the Assistant Chief of Staff, Environmental Security, MCB Camp Pendleton, the nearest water supply well (10/4) is located approximately 1.5 miles northwest of the site, in the Santa Margarita Valley Groundwater Basin.

During the 2000 Environmental Site Assessment (Ninyo and Moore, 2000), groundwater was observed between 42 and 50 feet bgs, but only in the four borings located to the west of the former tank cavity closest to a water line located along the rim of Windmill Canyon (Figure 2-1). Groundwater was not observed in the remaining borings located within and to the east of the former tank cavity. These borings were drilled between 50 and 70 feet bgs, left open for over 28 days, and were still dry. Two groundwater monitoring wells were subsequently installed (MW1 and MW2), and groundwater was measured at approximately 44 feet bgs in MW1. However, after installing well MW2 to 55 feet bgs, it was found to be dry.

During the additional site investigation activities completed in 2005 (see Section 3.0), moist soil was encountered in borings B10, B11, and B12 between approximately 35 and 40 feet bgs. Based on this observation, each boring was left open for approximately 24 hours to determine if water would enter the boring. After the 24-hour period, enough water had entered the borings to support installing three new permanent 4-inch-diameter groundwater monitoring wells (MW3, MW4, and MW5, respectively). Boring B13 was also left open for 24 hours and water did not enter the boring. Groundwater was also encountered in boring B14, drilled next to the water line located adjacent to the edge of Windmill Canyon at approximately 6 feet bgs. Due to several factors including 1) the presence of shallow groundwater located adjacent to the water line at the edge of the canyon (6 feet bgs), 2) groundwater present at approximately 40 feet bgs in wells located between the water line and the former tank cavity, and 3) no groundwater previously reported up to 70 feet bgs beneath the former tank cavity (Ninyo and Moore, 2000), it appears that the groundwater near the former tank cavity is primarily present due to one or more leaks in the water line.

3.0 SITE INVESTIGATION

In July 2005, fieldwork for the site investigation at UST Site 16144 was completed in accordance with a site-specific Work Plan [Tetra Tech FW (TtFW), 2004].

3.1 SOIL AND GROUNDWATER SAMPLING

Following utility clearance and Base notification, four relatively deep soil borings (B10, B11, B12, and B13) were advanced around and between previously identified areas of shallow and deep contamination, and one relatively shallow boring (B14) was advanced adjacent to a nearby water line. The locations of these soil borings are shown on Figure 3-1. Soil boring logs [prepared in accordance with the Unified Soil Classification System (U.S. Bureau of Reclamation, 1986)], the boring permit, and well sampling forms are included in Appendix A. In addition, since data from the Environmental Site Assessment indicated that TPH-d-impacted soil had migrated toward the edge of Windmill Canyon, three surface soil grab samples were collected along the slope of the canyon at the same elevation that the contamination was detected in the nearby soil borings (the sampling locations were identified with the use of a Brunton compass and a tape measure) and analyzed for TPH-d. One surface soil sample was collected on the slope of the canyon wall near the deepest soil contamination encountered in previous boring B16144-6 (approximately 42 feet below the top of the canyon wall), and two surface soil samples were collected on the slope of the canyon wall near the soil contamination encountered in previous boring B3/MW1 (approximately 57 feet below the top of the canyon wall) (Figure 3-1).

Each soil boring was advanced using a hollow-stem auger drill rig to facilitate the collection of soil samples. Soil samples were collected every 5 feet to the total depth of each boring (except for shallow boring B14) using a split-spoon sampler lined with pre-cleaned stainless steel sleeves. Boring B14 was drilled to 15 feet to determine if the nearby water line was leaking, and only a water sample was collected from this boring. All soil samples were analyzed for TPH-d, and the sample from each boring with the highest TPH-d concentration was further analyzed for VOCs (including BTEX, MTBE, and other oxygenates), and PAHs. En Core® samplers were used to collect samples for VOC analysis, and the remaining sample sleeves were sealed with Teflon® sheets and plastic end caps, labeled, and placed in a pre-chilled ice chest in accordance with project-specified requirements (TtFW, 2004). All non-disposable sampling equipment was decontaminated before sampling, between samples, and prior to leaving the site.

The four deep borings (B10, B11, B12, and B13) were drilled and sampled to between 45 to 55 feet bgs, where granitic bedrock was encountered. During drilling, moist soil was encountered in borings B10, B11, and B12 between approximately 35 and 40 feet bgs. Based on this observation, each boring was left open for approximately 24 hours to determine if water would slowly enter the boring. After the 24-hour period, enough water had entered the borings to

support installing permanent 4-inch-diameter groundwater monitoring wells (MW3, MW4, and MW5, respectively) (Figure 3-2) (see Appendix A for well construction details). However, after waiting 24 hours, water did not enter B13, and the boring was backfilled with bentonite from total depth to the ground surface.

Boring B14 was drilled to 15 feet bgs next to the water line located adjacent to the site to evaluate whether the line was leaking and impacting local groundwater conditions. After waiting 24 hours, water entered the boring and rose to approximately 6 feet bgs. A grab sample of groundwater was collected with a disposable bailer and analyzed for VOCs, which included the analyses for trihalomethanes (chloroform, bromoform, bromodichloromethane, and dibromochloromethane). Trihalomethanes are common byproducts of the chlorination process of drinking water, and if trihalomethanes were present in the groundwater, it would further suggest the source of the water was the water line.

After installing the three new groundwater monitoring wells, the wells were developed, and a survey was performed by a state of California-certified surveyor to delineate the location and elevation of each well (see boring logs, Appendix A). These parameters were determined to an accuracy of 0.01 foot vertically and 0.1 foot horizontally, and were in accordance with the North American Datum 83 and the North American Vertical Datum 88, respectively.

Groundwater samples were collected from each of the new wells on July 21, 2005. Existing well MW2 was dry, and MW1 was not sampled because free product was present (0.09 feet). All groundwater samples were analyzed for TPH-d, VOCs, and PAHs.

Prior to groundwater sampling, the depth to water in each well was measured and recorded on a well sampling log (Appendix A). The depths were measured from the top of the well casing. Table 3-1 provides a summary of the groundwater elevation data. Before sampling, a bladder pump was slowly lowered into each well and positioned near the center of the screen interval. In addition, a water level indicator was placed at the water surface to monitor water-level drawdown during purging. While purging at the lowest operational setting of the pump, which was approximately 100 to 110 milliliters per minute, the water level surface began to drop and exceeded the minimum drawdown requirement of 0.33 feet.

Because a stabilized water level could not be achieved, even at very low pumping rates, a passive, or minimum purge, sampling method was performed following the methodology presented in an EPA Groundwater Issue paper titled *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (Puls and Barcelona, 1996). The passive/minimal purge approach requires the removal of a minimum of three volumes of the sampling system from each well. The liquid volume of the sampling system consists of the volume of the pump's bladder, discharge tubing and flow through cell attached to the water quality meter. After purging, the required volume at the lowest flow rate achievable for each well, a groundwater sample was collected. To monitor groundwater conditions during purging, water quality parameters were measured

including: temperature, pH, electrical conductivity, turbidity, dissolved oxygen, and oxygen/reduction potential. These measurements were recorded on the well sampling logs provided in Appendix A. All non-disposable down-hole equipment, such as the pump and water-level indicator, were decontaminated between wells.

Groundwater samples were collected through new polyethylene discharge tubing, which was connected to the bladder pump. Each sample was collected in the appropriate containers, labeled, and placed in a cooler with ice immediately after sample collection for delivery to the analytical laboratory.

3.2 WASTE MANAGEMENT

Wastes from the site characterization activities (soil cuttings, decontamination water, and well purge water) were containerized in Department of Transportation approved 55-gallon drums and transported to an appropriate disposal facility. The handling, management, transportation, and disposal of wastes were conducted in accordance with state and federal laws and regulations. No wastes were stored at the site for more than 60 days. A copy of the waste manifest is included as Appendix B.

4.0 ANALYTICAL RESULTS

The analytical results for soil and groundwater samples collected during the additional site investigation are discussed in this section, summarized in Tables 4-1 and 4-2, and presented on Figures 3-1 and 3-2. A cross section through the site is also included as Figure 3-3. Copies of the laboratory reports and chain-of-custody forms are provided in Appendix C.

4.1 SOIL BORING ANALYTICAL RESULTS

All soil samples were analyzed for TPH-d, and the sample from each boring with the highest TPH-d concentration was further analyzed for VOCs (including BTEX, MTBE, and other oxygenates), and PAHs. TPH-d was detected in B11 at 5 feet bgs (2,000 mg/kg), 10 feet bgs (1,400 mg/kg) and 30 feet bgs (23,000 mg/kg), and in B12 at 25 feet bgs (13 mg/kg). TPH-d was not detected in any of the soil samples collected from borings B10 and B13 (Figure 3-1).

The soil samples from 30 feet bgs in B11 and from 25 feet bgs in B12 were further analyzed for VOCs and PAHs. The only VOC reported was acetone. Acetone, a likely laboratory contaminant, was reported at an estimated value of 21 micrograms per kilogram (μg/kg) in B11, and at an estimated value of 28 μg/kg in B12 (Table 4-1). Several PAHs were also reported to be present in both samples at low to estimated (trace) levels (Table 4-1).

4.2 SURFACE SOIL ANALYTICAL RESULTS

The three surface soil samples collected on the slope of Windmill Canyon (SS1, SS2, and SS3) (Figure 3-1) were analyzed for TPH-d. Surface soil sample SS3 was collected at the same elevation as the deepest soil contamination encountered in previous boring B16144-6 (approximately 42 feet below the top of the canyon wall), and surface soil samples SS1 and SS2 were collected at the same elevation as the soil contamination encountered in previous boring B3/MW1 (approximately 57 feet below the top of the canyon wall).

TPH-d was not detected in the surface soil sample collected near boring B16144-6; however, very low levels of TPH-d were reported (with chromatograms that displayed a heavier fuel pattern than diesel) in the two samples collected near boring B3/MW1. It was reported that surface soil sample SS1 contained 11 mg/kg of TPH-d, and surface soil sample SS3 contained 10 mg/kg of TPH-d (Figure 3-1).

4.3 GROUNDWATER SAMPLE ANALYTICAL RESULTS

On July 21, 2005, groundwater samples were collected from new wells MW3, MW4, and MW5. Existing well MW2 was dry, and MW1 was not sampled because free product (0.09 feet) was present. All groundwater samples were analyzed for TPH-d, VOCs, and PAHs.

TPH-d was detected in each well. MW3 contained TPH-d at 0.27 mg/L, MW4 contained 4.9 mg/L of TPH-d, and MW5 contained 6.3 mg/L of TPH-d. Trace to very low levels of some VOCs were also detected, including cis-1,2-dichloroethene in MW5 at 0.77 micrograms per liter (μg/L) (Table 4-2). Toluene was detected in each well up to a maximum of 0.64 μg/L, total xylenes were detected in MW3 at 0.43 μg/L, and methyl ethyl ketone was reported in MW5 at 5.4 μg/L. Acetone, a common laboratory contaminant, was also reported in well MW5 at 17 μg/L (Table 4-2). PAHs were not detected in any of the wells.

The groundwater grab sample collected from 6 feet bgs in boring B14 (located adjacent to the water line along the western edge of the site) was analyzed for VOCs, including trihalomethanes. No VOCs, including trihalomethanes, were detected in B14.

Prior to collecting groundwater samples, water level elevations were recorded in each well. As shown on Figure 3-2, groundwater elevations at the site ranged from approximately 398 feet above mean sea level (amsl) at B14 (located near the water line along the edge of Windmill Canyon) to 360.03 feet amsl at MW1. Based on water the levels measured in July 2005, groundwater is flowing to the east with a steep gradient between approximately 2.5 to 8 feet per foot. Due to the steep groundwater gradient to the east from the water line along the edge of Windmill Canyon, and the absence of groundwater to 70 feet bgs as indicated during the 2000 Environmental Site Assessment (Ninyo and Moore, 2000), it is clear that the water line is leaking and impacting local groundwater conditions (Figure 3-2).

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

All samples were collected and preserved in accordance with the San Diego County DEH Land and Water Quality Division *Site Assessment and Mitigation Manual 2005* (DEH, 2005). Samples were transported to the analytical laboratory following sample collection and were analyzed within the method-specific analytical holding times. EMAX Laboratories Inc., a State of California-certified and Naval Facilities Engineering Service Center-evaluated laboratory, performed the sample analyses for this project. This section summarizes quality assurance and quality control (QC) results for the site investigation sampling and analysis activities.

To assess sampling variability, one groundwater field duplicate sample was collected at MW5 (identified as 0003-060) and analyzed for VOCs, TPH-d, and PAHs. The relative percent difference (RPD) between the field duplicate and primary sample (identified as 0003-059) for TPH-d was 10 percent, indicating excellent field precision. The calculated RPD for detected VOCs (acetone and cis-1,2-dichloroethene) were 34 and 8 percent, respectively indicating acceptable field precision. High RPDs are expected for sample results near the reporting levels (RLs). No PAHs were detected in any of the samples; therefore, the RPD between the field duplicate and the original sample could not be calculated. A soil field duplicate (identified as 0003-018) was also collected at boring B11. Since TPH-d was not detected in either the original sample (identified as 0003-017) or the duplicate sample, the RPD could not be calculated.

In accordance with the analytical method specifications, method blanks, surrogate spikes, and laboratory control samples (LCSs) were analyzed to assess method accuracy and precision. A matrix spike (MS) and matrix spike duplicate (MSD) sample pair was also analyzed by the laboratory.

No detectable levels of TPH-d, VOCs, or PAHs were found in the method blanks above half the project RLs during this event. Percent recoveries in LCSs, surrogates, and MS/MSD samples, as well as RPDs between unspiked and spiked sample duplicates, were well within the project-specific QC acceptance limits with one exception. Surrogates in two of the samples for TPH-d and PAHs were recovered high due to matrix effect caused by high native concentrations.

A third-party validation company, Laboratory Data Consultants, Inc., located in Carlsbad, California, performed validation of the laboratory data. Four samples out of 43 were validated in accordance with EPA Level IV protocols, and the remaining samples were validated in accordance with EPA Level III protocols. The validation reported that all of the applicable criteria were met for all of the samples with a few minor exceptions. Data validation reported only minor discrepancies, which resulted in "J" qualifiers (estimated value) applied to some of the sample results.

6.0 SUMMARY AND RECOMMENDATIONS

The sections below summarize the results of the site investigation, provide an evaluation of site data, and include recommendations for future work.

6.1 SUMMARY

Results from site investigation activities at UST Site 16144 indicate that the extent of diesel-impacted soil (TPH-d greater than 100 mg/kg) extends from the former tank cavity to the northwest approximately 30 feet, and from the former tank cavity to the southwest approximately 50 feet (see Figure 3-1). TPH-d was encountered in relatively shallow soils beneath the former tank cavity (up to 10 feet bgs), and in deeper soils located both to the northwest (up to 30 feet bgs) and to the southwest (up to 40 feet bgs) of the former tank cavity. The highest reported concentration of diesel (TPH-d) was 23,000 mg/kg located to the northwest of the former tank cavity at 30 feet bgs (B11). Surface soil samples collected along the canyon slope at the same depth as contamination previously detected in nearby soil borings indicated that TPH-d has not migrated to the canyon slope to the northwest of the former tank cavity and was reported in very low levels (10 mg/kg and 11 mg/kg) (with chromatograms that displayed a heavier fuel pattern than diesel) along the slope located to the southwest of the former tank cavity.

During the Environmental Site Assessment (Ninyo and Moore, 2000) groundwater was encountered between approximately 40 and 50 feet bgs in soil borings located to the west of the former tank cavity relatively close to the water line located along the edge of Windmill Canyon. Despite leaving the other soil borings located within, and to the east of the former tank cavity open for approximately 28 days, which were all drilled between 50 and 70 feet bgs (B1, B5, B6, B8, and B9), groundwater was not encountered in these borings. This data suggested the water line located along the rim of Windmill Canyon could be leaking and influencing local groundwater conditions.

During the site investigation three additional groundwater monitoring wells were installed and a shallow boring was drilled next to the water line to determine the direction of groundwater flow and if the water line was leaking. Site investigation data indicated shallow groundwater was present next to the water line (6 feet bgs in B14), groundwater was present at approximately 40 feet bgs in wells located between the water line and the former tank cavity (MW3, MW4, and MW5), and groundwater was not present up to 55 feet bgs relatively near the water line to the south of the former tank cavity (B13). This data, along with the fact that groundwater was not previously encountered up to 70 feet bgs beneath the former tank cavity (Ninyo and Moore, 2000), indicate that groundwater is flowing from the water line located west of the former tank cavity to the east with a steep gradient (see Figure 3-2). Since groundwater was not encountered near the water line south of the tank cavity to 55 feet bgs (B13), the water line may not be

leaking, or may not be leaking as much, in that area. Overall, water elevation data indicate that groundwater near the former tank cavity is primarily present due to one or more leaks in the water line.

To evaluate groundwater quality, groundwater samples were collected from the three new monitoring wells (MW3, MW4, and MW5). Existing well MW2 was dry, and existing well MW1 was not sampled due to the presence of free product (0.09 feet). TPH-d was detected in each well between 0.27 and 6.3 mg/L. Trace to very low levels of some VOCs were also detected, including cis-1,2-dichloroethene (0.77 μg/L), toluene (up to 0.64 μg/L), total xylenes (0.43 μg/L), and methyl ethyl ketone (5.4 μg/L) (see Table 4-2). PAHs were not detected in any of the wells.

Overall, results from the site investigation indicate that the local hydrogeology is significantly impacted by the water line located to the west of the former tank cavity. Data indicate that diesel leaked from the former UST and migrated from the former tank cavity to the west toward the water line located on the edge of Windmill Canyon (Figure 3-3). Water elevation data indicate that the water line is leaking and groundwater is flowing to the east with a steep gradient toward the former tank cavity. At the one location where free product was encountered (MW1), it appears that impacted soil, migrating to the west, intersected the top of groundwater that has a steep gradient to the east. Based on this observation, it appears that free product may only potentially be present where, due to the unusual geometry of the top of groundwater and the location of impacted soil, the top of groundwater and impacted soil intersect.

6.2 RECOMMENDATIONS

As discussed above, site investigation results further delineated the extent of diesel-impacted soil and the unusual nature of groundwater at the site. Recommendations for future work are based on current site conditions that include 1) the original contaminant source, the leaking USTs, have been removed, 2) it took at least 24 hours for groundwater to appear in the soil borings before deciding if it was possible to collect samples with permanent wells, suggesting that either the transmissivity of the aquifer is very low, or, more likely, the water line is leaking at a rate that is not "recharging" the aquifer as fast as would be expected in a "natural" aquifer, and 3) the site is on a topographic high at the rim of a canyon 1.5 miles from the nearest water supply well. Based on current site conditions and location, significant active soil and groundwater remediation is not recommended at this time. However, it is proposed that a Corrective Action Plan be prepared for agency review that recommends the following:

- Record groundwater elevations and collect groundwater samples quarterly for one year to evaluate groundwater quality and potential contaminant concentration trends.
- Recover the free product from MW1 during the groundwater monitoring program. Due to the relatively small amount of product currently present (0.09 feet), *in situ* product recovery socks, or potentially a solar-powered recovery trailer, may be used.

7.0 REFERENCES

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TABLES

TABLE 2-1

SUMMARY OF 1991/1992 INITIAL SITE ASSESSMENT AND 1996 TANK REMOVAL SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TPH-g (mg/kg)	TPH-d (mg/kg)	TRPH (mg/kg)
Boring B16144-1	B16144-1-5	3-Dec-91	5	--	--	**771**
	B16144-1-10	3-Dec-91	10	--	--	**403**
	B16144-1-15	3-Dec-91	15	--	--	ND
	B16144-1-19	3-Dec-91	19	--	--	ND
Boring B16144-2	B16144-2-5	30-Jan-92	5	--	--	ND
	B16144-2-10	30-Jan-92	10	--	--	ND
	B16144-2-15	30-Jan-92	15	--	--	ND
	B16144-2-19	30-Jan-92	19	--	--	**109**
Boring B16144-3	B16144-3-5	30-Jan-92	5	--	--	ND
	B16144-3-10	30-Jan-92	10	--	--	ND
	B16144-3-15	30-Jan-92	15	--	--	ND
	B16144-3-19	30-Jan-92	19	--	--	ND(ND)
Boring B16144-4	B16144-4-5	31-Jan-92	5	--	--	ND
	B16144-4-10	31-Jan-92	10	--	--	ND
	B16144-4-15	31-Jan-92	15	--	--	ND
	B16144-4-19	31-Jan-92	19	--	--	ND
Boring B16144-6	B16144-6-5	21-Feb-92	5	--	--	ND
	B16144-6-10	21-Feb-92	10	--	--	ND
	B16144-6-15	21-Feb-92	15	--	--	2,826(2,493)
	B16144-6-20	21-Feb-92	20	--	--	ND
	B16144-6-25	21-Feb-92	25	--	--	ND
	B16144-6-28	21-Feb-92	28	--	--	108
	B16144-6-30	21-Feb-92	30	--	--	7,338
	B16144-6-35	21-Feb-92	35	--	--	ND
	B16144-6-40	21-Feb-92	40	--	--	ND
	B16144-6-45	21-Feb-92	45	--	--	ND
	B16144-6-50	21-Feb-92	50	--	--	ND
UST Excavation	16144-A	17-Sep-96	10	ND	8,900	--
	16144-B	17-Sep-96	11	ND	1,900	--
	16144-C	17-Sep-96	11	ND	370	--
Detection Limits				10	10	10

Notes:

-- not analyzed for listed constituent
( ) duplicate analysis of sample
bgs - below ground surface
mg/kg - milligrams per kilogram
ND - analyte not detected at or above method detection limit
TPH-d - total petroleum hydrocarbons quantified as diesel
TPH-g - total petroleum hydrocarbons quantified as gasoline
TRPH - total recoverable petroleum hydrocarbons
UST - Underground Storage Tank

TABLE 2-2

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TRPH (mg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	SPLP/TPH-d (mg/L)	BTEX/MTBE (mg/kg)	SPLP/BTEX/MTBE (mg/L)	EOs (mg/kg)	SPLP/EOs (mg/L)	PAHs (mg/kg)	SPLP/PAHs (mg/kg)
Boring 16144-B1	16144-B1-02.5	10-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-05	10-Jul-00	5	--	ND	**730**	--	--	--	--	--	--	--
	16144-B1-07.5	10-Jul-00	7.5	--	ND	**2,000**	--	--	--	--	--	--	--
	16144-B1-10	10-Jul-00	10	--	ND	**6,200**	**1.30**	benzene **0.071** toluene **0.20** ethylbenzene **0.52** xylenes **2.2** MTBE ND	benzene **0.00078** toluene **0.00096** ethylbenzene **0.029** xylenes **0.031** MTBE **0.063(ND)**	ND	ND	acenaphthene **0.70** fluorene **1.3** naphthalene **1.7** phenanthrene **2.8**	naphthalene **0.035**
	16144-B1-12.5	10-Jul-00	12.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-15	10-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-17.5	10-Jul-00	17.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-22.5	10-Jul-00	22.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-25	10-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-30	10-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-35	10-Jul-00	35	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-40	10-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-45	10-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-50	10-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-55	10-Jul-00	55	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-60	10-Jul-00	60	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-65	10-Jul-00	65	--	ND	ND	--	--	--	--	--	--	--
	16144-B1-70	10-Jul-00	70	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
Boring 16144-B2	16144-B2-02.5	10-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-05	10-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-10	10-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-15	10-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-20	10-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-25	10-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-30	10-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-35	10-Jul-00	35	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-40	10-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-45	10-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-50	12-Jul-00	50	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
	16144-B2-55	12-Jul-00	55	--	ND	ND	--	--	--	--	--	--	--
	16144-B2-60	12-Jul-00	60	--	ND	ND	--	--	--	--	--	--	--

TABLE 2-2

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TRPH (mg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	SPLP/TPH-d (mg/L)	BTEX/MTBE (mg/kg)	SPLP/BTEX/MTBE (mg/L)	EOs (mg/kg)	SPLP/EOs (mg/L)	PAHs (mg/kg)	SPLP/PAHs (mg/kg)
Boring 16144-B3	16144-B3-02.5	12-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-05	12-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-07.5	12-Jul-00	7.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-10	12-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-15	12-Jul-00	15	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
	16144-B3-20	12-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-25	12-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-30	12-Jul-00	30	--	ND	**19**	--	--	--	--	--	--	--
	16144-B3-35	12-Jul-00	35	--	ND	**2,200**	--	--	--	--	--	--	--
	16144-B3-40	12-Jul-00	40	--	ND	**3,600**	**1.60**	ND	benzene **0.00033**	ND	ND	fluorene **0.63** naphthalene **1.5**	naphthalene **0.028**
	16144-B3-45	12-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B3-50	12-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--
Boring 16144-B4	16144-B4-05	12-Jul-00	5	--	ND	**180**	**0.14**	ND	benzene **0.00037** xylenes **0.00064**	ND	ND	ND	ND
	16144-B4-10	12-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-15	12-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-20	12-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-25	12-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-27.5	12-Jul-00	27.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-30	12-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-35	12-Jul-00	35	--	ND	**750**	--	--	--	--	--	--	--
	16144-B4-40	12-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-45	12-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-50	12-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-55	12-Jul-00	55	--	ND	ND	--	--	--	--	--	--	--
	16144-B4-60	12-Jul-00	60	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
Boring 16144-B5	16144-B5-05	13-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-10	13-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-15	13-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-20	13-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-25	13-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-30	13-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-35	13-Jul-00	35	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-40	13-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-45	13-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B5-50	13-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--

TABLE 2-2

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TRPH (mg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	SPLP/TPH-d (mg/L)	BTEX/MTBE (mg/kg)	SPLP/BTEX/MTBE (mg/L)	EOs (mg/kg)	SPLP/EOs (mg/L)	PAHs (mg/kg)	SPLP/PAHs (mg/kg)
Boring 16144-B6	16144-B6-02.5	13-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-05	13-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-07.5	13-Jul-00	7.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-10	13-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-15	13-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-20	13-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-25	13-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-27.5	13-Jul-00	27.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-30	13-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-35	13-Jul-00	35	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
	16144-B6-40	13-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-45	13-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B6-50	13-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--
Boring 16144-B7	16144-B7-02.5	14-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-05	14-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-07.5	14-Jul-00	7.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-10	14-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-15	14-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-20	14-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-25	14-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-27.5	14-Jul-00	27.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-30	14-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-35	14-Jul-00	35	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-40	14-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-45	14-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B7-50	14-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--
Boring 16144-B8	16144-B8-02.5	14-Jul-00	2.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-05	14-Jul-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-07.5	14-Jul-00	7.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-10	14-Jul-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-15	14-Jul-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-20	14-Jul-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-25	14-Jul-00	25	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-27.5	14-Jul-00	27.5	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-30	14-Jul-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-35	14-Jul-00	35	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-40	14-Jul-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-45	14-Jul-00	45	--	ND	ND	--	--	--	--	--	--	--
	16144-B8-50	14-Jul-00	50	--	ND	ND	--	--	--	--	--	--	--

TABLE 2-2

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TRPH (mg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	SPLP/TPH-d (mg/L)	BTEX/MTBE (mg/kg)	SPLP/BTEX/MTBE (mg/L)	EOs (mg/kg)	SPLP/EOs (mg/L)	PAHs (mg/kg)	SPLP/PAHs (mg/kg)
Boring 16144-B9	16144-B9-05	1-Aug-00	5	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-07.5	1-Aug-00	7.5	--	ND(ND)	ND(ND)	--	--	--	--	--	--	--
	16144-B9-10	1-Aug-00	10	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-15	1-Aug-00	15	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-20	1-Aug-00	20	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-30	1-Aug-00	30	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-40	1-Aug-00	40	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-50	1-Aug-00	50	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-55	1-Aug-00	55	--	ND	ND	--	--	--	--	--	--	--
	16144-B9-60	2-Aug-00	60	--	ND	ND	--	--	--	--	--	--	--
Detection Limits				10	10	10	0.10						

Notes:
( ) - Duplicate laboratory analysis
-- not analyzed for listed constituent
bgs - below ground surface
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
BTEX/MTBE - benzene, toluene, ethylbenzene, total xylenes, and methyl tert-butyl ether
EOs - ether oxygenates which include methyl tert-butyl ether, tert-butyl alcohol, di-isopropyl ether, ethyl tert-butyl ether, and tert-amyl methyl ether
ND - analyte not detected at or above method detection limit
PAH - polynuclear aromatic hydrocarbon
SPLP - Synthetic Precipitation Leaching Proceedure
TPH-d - total petroleum hydrocarbons quantified as diesel fuel
TPH-g - total petroleum hydrocarbons quantified as gasoline
TRPH - total recoverable petroleum hydrocarbons
UST - Underground Storage Tank

TABLE 2-3

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT GROUNDWATER SAMPLE RESULTS, UST SITE 16144

Sample ID	Date Sampled	TPH-g (mg/L)	TPH-d (mg/L)	BTEX/MTBE (µg/L)	VOCs (inc. EOs) (µg/L)	PAHs (µg/L)
16144-B2-GW1	12-Jul-00	ND	0.40	--	--	--
16144-B3-GW1	12-Jul-00	ND	57	--	--	--
16144-B3/MW1	7-Sep-00	ND	0.54(0.55)	ND	ND	ND
16144-B4-GW1	14-Jul-00	ND	1.30	--	--	--
16144-B7-GW1	17-Jul-00	ND	ND	--	--	--
Detection Limits		0.10	0.10	Various	Various	Various

Notes:

( ) Laboratory duplicate analysis.

-- - not analyzed

µg/L - micrograms per liter

BTEX/MTBE - benzene, toluene, ethylbenzene, total xylenes and methyl tert-butyl ether

EOs - ether oxygenates which include methyl tert-butyl ether, tert-butyl alcohol, diisopropyl ether, ethyl-tert butyl ether, and tert-amyl methyl ether

mg/L - milligrams per liter

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

TPH-g - total petroleum hydrocarbons quantified as gasoline

UST - Underground Storage Tank

VOC - volatile organic compounds

TABLE 3-1

SUMMARY OF 2005 SITE INVESTIGATION WATER LEVEL ELEVATIONS
UST SITE 16144, MCB CAMP PENDELTON, CA

Monitoring Well	Well Screen Interval (feet btoc)	Reference Point (toc) Elevation (feet amsl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet amsl)	Comments
MW1	35-50	403.30	21-Jul-05	42.45	360.85	0.09 feet free product
MW2	40-55	402.48	21-Jul-05	Dry	Dry	
MW3	30-45	402.53	21-Jul-05	40.68	361.85	
MW4	30-45	402.76	21-Jul-05	41.42	361.34	
MW5	29-44	403.29	21-Jul-05	41.87	361.42	

Notes:

amsl- above mean sea level

btoc- below top of casing

MCB- Marine Corps Base

toc- top of casing

UST- Underground Storage Tank

TABLE 4-1

SUMMARY OF 2005 SITE INVESTIGATION SOIL SAMPLE RESULTS
UST SITE 16144, MCB CAMP PENDLETON

Soil Location	Depth Sampled (feet bgs)	Sample ID	Date Sampled	TPH-d (mg/kg)	VOCs[1] (µg/kg)	PAHs[1] (mg/kg)							
					Acetone	Naphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Benzo[a]anthracene	Chrysene	Benzo[k]fluoranthene
B10	5	0003-046	7/12/05	ND	--	--	--	--	--	--	--	--	--
	10	0003-047	7/12/05	ND	--	--	--	--	--	--	--	--	--
	15	0003-048	7/12/05	ND	--	--	--	--	--	--	--	--	--
	20	0003-049	7/12/05	ND	--	--	--	--	--	--	--	--	--
	25	0003-050	7/12/05	ND	--	--	--	--	--	--	--	--	--
	30	0003-051	7/12/05	ND	--	--	--	--	--	--	--	--	--
	35	0003-052	7/12/05	ND	--	--	--	--	--	--	--	--	--
	40	0003-053	7/12/05	ND	--	--	--	--	--	--	--	--	--
	45	0003-054	7/12/05	ND	--	--	--	--	--	--	--	--	--
B11	5	0003-009	7/11/05	2,000	--	--	--	--	--	--	--	--	--
	10	0003-010	7/11/05	1,400	--	--	--	--	--	--	--	--	--
	15	0003-011	7/11/05	ND	--	--	--	--	--	--	--	--	--
	20	0003-012	7/11/05	ND	--	--	--	--	--	--	--	--	--
	25	0003-013	7/11/05	ND	--	--	--	--	--	--	--	--	--
	30	0003-014	7/11/05	23,000	21 J	4.10	0.39	1.70	2.80	0.73	1.80	0.21	0.58
	35	0003-015	7/11/05	ND	--	--	--	--	--	--	--	--	--
	40	0003-016	7/11/05	ND	--	--	--	--	--	--	--	--	--
	45	0003-017	7/11/05	ND	--	--	--	--	--	--	--	--	--
	45	0003-018(dup)	7/11/05	ND	--	--	--	--	--	--	--	--	--
	50	0003-019	7/11/05	ND	--	--	--	--	--	--	--	--	--
B12	5	0003-023	7/11/05	ND	--	--	--	--	--	--	--	--	--
	10	0003-024	7/11/05	ND	--	--	--	--	--	--	--	--	--
	15	0003-025	7/11/05	ND	--	--	--	--	--	--	--	--	--
	20	0003-026	7/11/05	ND	--	--	--	--	--	--	--	--	--
	25	0003-027	7/11/05	13[3]	28 J	.018 J	0.017J	0.08	0.95	0.07	ND	0.06	0.02
	30	0003-028	7/11/05	ND	--	--	--	--	--	--	--	--	--
	35	0003-029	7/11/05	ND	--	--	--	--	--	--	--	--	--
	40	0003-030	7/11/05	ND	--	--	--	--	--	--	--	--	--
	45	0003-031	7/11/05	ND	--	--	--	--	--	--	--	--	--
B13	5	0003-035	7/12/05	ND	--	--	--	--	--	--	--	--	--
	10	0003-036	7/12/05	ND	--	--	--	--	--	--	--	--	--
	15	0003-037	7/12/05	ND	--	--	--	--	--	--	--	--	--
	20	0003-038	7/12/05	ND	--	--	--	--	--	--	--	--	--
	25	0003-039	7/12/05	ND	--	--	--	--	--	--	--	--	--
	30	0003-040	7/12/05	ND	--	--	--	--	--	--	--	--	--
	35	0003-041	7/12/05	ND	--	--	--	--	--	--	--	--	--
	40	0003-042	7/12/05	ND	--	--	--	--	--	--	--	--	--
	45	0003-043	7/12/05	ND	--	--	--	--	--	--	--	--	--
	50	0003-044	7/12/05	ND	--	--	--	--	--	--	--	--	--
	55	0003-045	7/12/05	ND	--	--	--	--	--	--	--	--	--

TABLE 4-1

SUMMARY OF 2005 SITE INVESTIGATION SOIL SAMPLE RESULTS
UST SITE 16144, MCB CAMP PENDLETON

Soil Location	Depth Sampled (feet bgs)	Sample ID	Date Sampled	TPH-d (mg/kg)	VOCs[1] (µg/kg)	PAHs[1] (mg/kg)							
					Acetone	Naphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Benzo[a]anthracene	Chrysene	Benzo[k]fluoranthene
SS-1	Surface[2]	0003-020	7/11/05	11[3]	--	--	--	--	--	--	--	--	--
SS-2	Surface[2]	0003-021	7/11/05	10[3]	--	--	--	--	--	--	--	--	--
SS-3	Surface[2]	0003-022	7/11/05	ND	--	--	--	--	--	--	--	--	--

Notes:

[1] Only analytes with reported detects listed

[2] Surface soil grab sample from slope of canyon

[3] Chromatogram does not exactly match diesel pattern, displayed heavier fuel pattern

-- - not analyzed

µg/kg - micrograms per kilogram

bgs - below ground surface

dup - duplicate

J - estimated value

MCB - Marine Corps Base

mg/kg - milligrams per kilogram

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

VOC - volatile organic compound

TABLE 4-2

SUMMARY OF 2005 SITE INVESTIGATION GROUNDWATER SAMPLE RESULTS
UST SITE 16144, MCB CAMP PENDLETON

Sample Location	Sample ID	Date Sampled	TPH-d (mg/L)	VOCs[1] (µg/L)						PAHs[1] (µg/L)
				cis-1,2-dichloroethene	Toluene	Xylenes	Methyl ethyl ketone	Acetone	Trihalomethanes	
MW3	0003-057	7/21/05	0.27	ND	0.64	0.43 J	ND	ND	ND	ND
MW4	0003-058	7/21/05	4.9	ND	0.24 J	ND	ND	ND	ND	ND
MW5	0003-059	7/21/05	5.7	0.77 J	0.37 J	ND	5.4 J	17 J	ND	ND
	0003-060 (dup)	7/21/05	6.3	0.71 J	ND	ND	ND	12 J	ND	ND
B14[2]	0003-056	7/13/05	NA	ND	ND	ND	ND	ND	ND	NA

Notes:

[1] All other analytes not listed were not detected

[2] Groundwater grab sample from boring B14

J - estimated value

µg/L - micrograms per liter

dup - duplicate

MCB - Marine Corps Base

mg/L - milligrams per liter

NA - not analyzed

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

VOC - volatile organic compound

FIGURES

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-05-0125	DRAWING NO: 05012511.DWG
DATE: 08/19/05	REV: REVISION 0		CTO: #0003	

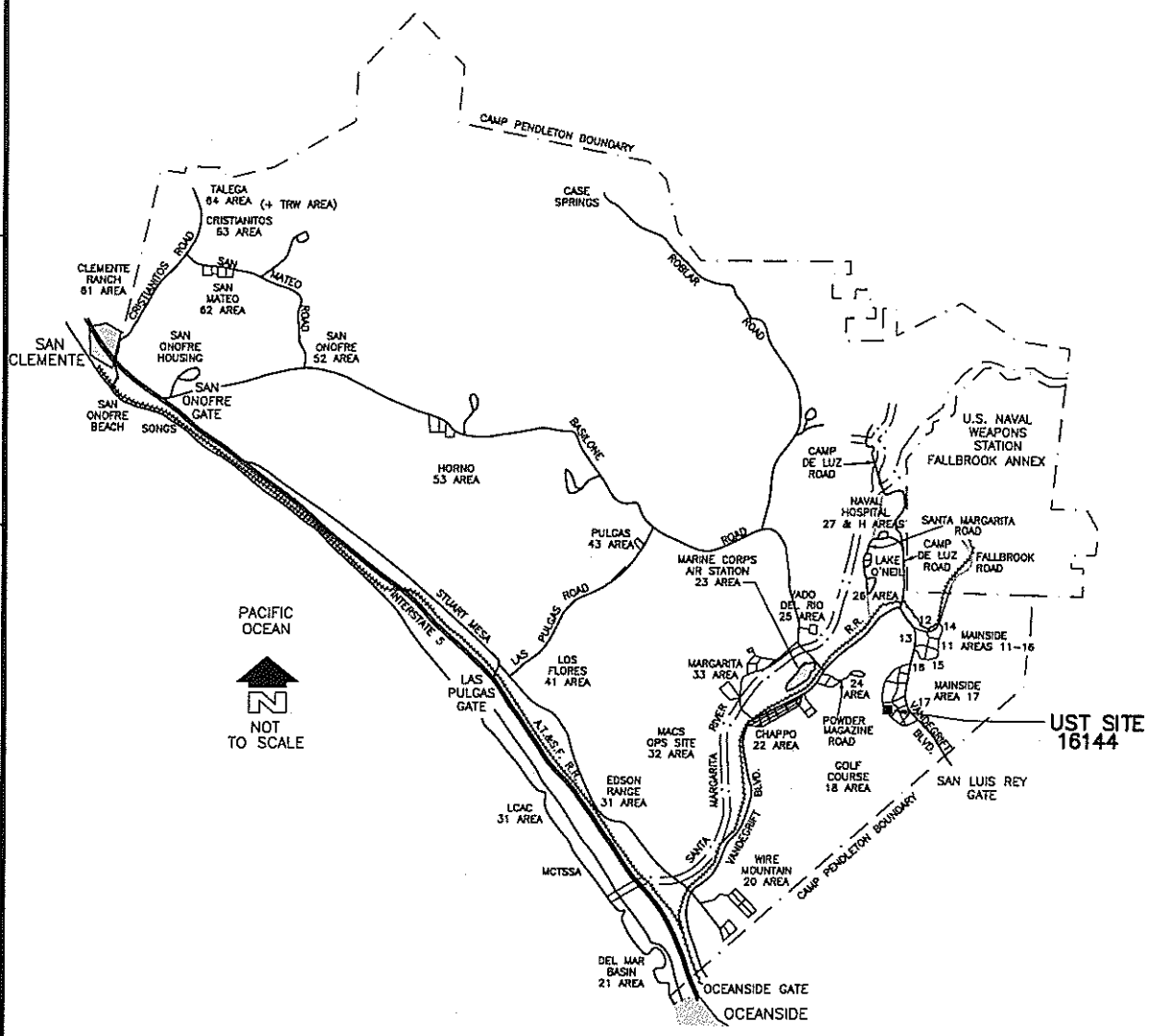
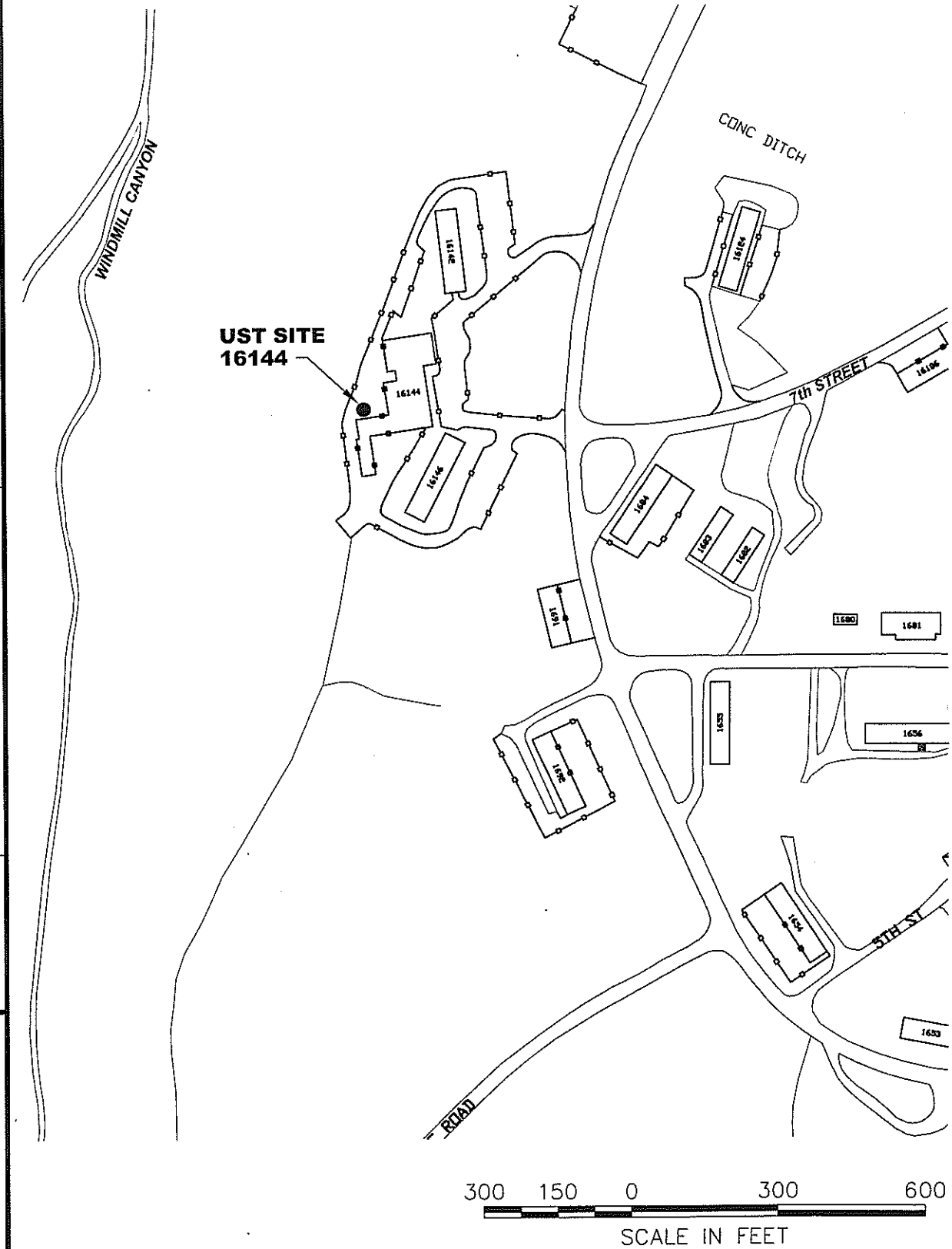


Figure 1-1
SITE LOCATION MAP

MCB CAMP PENDLETON

SES-TECH

P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012511.DWG
PLOT/UPDATE: AUG 16 2005 16:09:57



300 150 0 300 600

SCALE IN FEET

Figure 1-2

SITE VICINITY MAP

MCB CAMP PENDLETON

SES-TECH

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-05-0125	DRAWING NO: 05012512.DWG
DATE: 08/19/05	REV: REVISION 0		CTO: #0003	

P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012512.DWG
PLOT/UPDATE: AUG 23 2005 13:27:08

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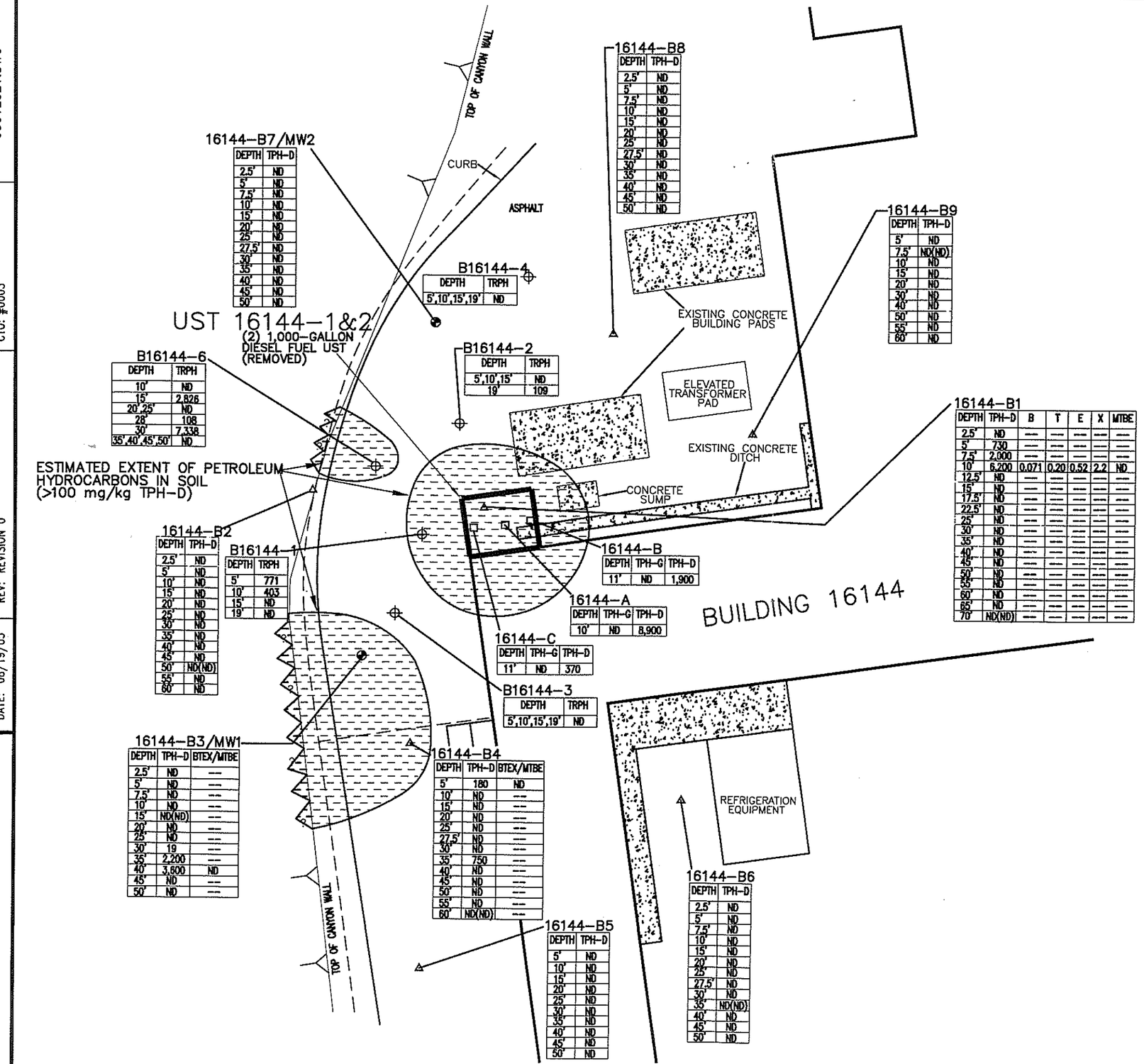
DCN: SES-TECH-05-0125
CTO: #0003
APPROVED BY: MC
CHECKED BY: MC
REV: REVISION 0
DRAWN BY: MD
DATE: 08/19/05



LEGEND

- Approximate limits of former UST excavation
- Tank excavation confirmation sample
- Water Line
- Soil boring (2000 Investigation)
- Soil boring (1991/1992 investigation)
- Monitoring well (2000 Investigation)
- TPH–G: Total Petroleum Hydrocarbons as Gasoline (mg/kg)
- TPH–D: Total Petroleum Hydrocarbons as Diesel (mg/kg)
- TRPH: Total Recoverable Petroleum Hydrocarbons (mg/kg)
- ND: Not detected at or above the detection limit
- BTEX/MTBE: Benzene, toluene, ethylbenzene, xylenes and methyl tert–butyl ether (mg/kg)
- —: Not analyzed
- Extent of TPH–d in soil as interpreted from results of 2000 Environmental Site Assessment Ninyo & Moore, 2000

0 20 40
scale feet

Figure 2–1

HISTORICAL SOIL SAMPLE RESULTS
UST SITE 16144

MCB CAMP PENDLETON

SES-TECH

P:\2973–SESTECH\CTO–0003 PENDLETON\SITE 16144\05–0125 FINAL INV REPORT\DWG\05012521.DWG
PLOT/UPDATE: SEP 15 2005 09:19:13

DRAWING NO: 05012531.DWG
DCN: SES-TECH-05-0125
CTO: #0003
APPROVED BY: MC
CHECKED BY: WB
REV: REVISION 0
DRAWN BY: MD
DATE: 08/19/05

B10

DEPTH	TPH-D
5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
30'	ND
35'	ND
40'	ND
45'	ND

16144-B7/MW2

DEPTH	TPH-D
2.5'	ND
5'	ND
7.5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
27.5'	ND
30'	ND
35'	ND
40'	ND
45'	ND
50'	ND

16144-B8

DEPTH	TPH-D
2.5'	ND
5'	ND
7.5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
27.5'	ND
30'	ND
35'	ND
40'	ND
45'	ND
50'	ND

B11

DEPTH	TPH-D
5'	2,000
10'	1,400
15'	ND
20'	ND
25'	ND
30'	23,000
35'	ND
40'	ND
45'	ND
50'	ND

B16144-6

DEPTH	TRPH
10'	ND
15'	2,826
20',25'	ND
28'	108
30'	7,338
35',40',45',50'	ND

B16144-4

DEPTH	TRPH
5',10',15',19'	ND

16144-B9

DEPTH	TPH-D
5'	ND
7.5'	ND(ND)
10'	ND
15'	ND
20'	ND
30'	ND
40'	ND
50'	ND
55'	ND
60'	ND

B16144-2

DEPTH	TRPH
5',10',15'	ND
19'	109

DEPTH	TPH-D
0'	ND

16144-B1

DEPTH	TPH-D	B	T	E	X	MTBE
2.5'	ND	---	---	---	---	---
5'	730	---	---	---	---	---
7.5'	2,000	---	---	---	---	---
10'	6,200	0.071	0.20	0.52	2.2	ND
12.5'	ND	---	---	---	---	---
15'	ND	---	---	---	---	---
17.5'	ND	---	---	---	---	---
22.5'	ND	---	---	---	---	---
25'	ND	---	---	---	---	---
30'	ND	---	---	---	---	---
35'	ND	---	---	---	---	---
40'	ND	---	---	---	---	---
45'	ND	---	---	---	---	---
50'	ND	---	---	---	---	---
55'	ND	---	---	---	---	---
60'	ND	---	---	---	---	---
65'	ND	---	---	---	---	---
70'	ND(ND)	---	---	---	---	---

ESTIMATED EXTENT OF PETROLEUM HYDROCARBONS IN SOIL (>100 mg/kg TPH-D)

16144-B2

DEPTH	TPH-D
2.5'	ND
5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
30'	ND
35'	ND
40'	ND
45'	ND
50'	ND(ND)
55'	ND
60'	ND

B16144-1

DEPTH	TRPH
5'	771
10'	403
15'	ND
19'	ND

16144-B

DEPTH	TPH-G	TPH-D
11'	ND	1,900

16144-A

DEPTH	TPH-G	TPH-D
10'	ND	8,900

16144-C

DEPTH	TPH-G	TPH-D
11'	ND	370

B12

DEPTH	TPH-D
5'	ND
10'	ND
15'	ND
20'	ND
25'	13
30'	ND
35'	ND
40'	ND
45'	ND

DEPTH	TPH-D
0'	10(f)

B16144-3

DEPTH	TRPH
5',10',15',19'	ND

16144-B3/MW1

DEPTH	TPH-D	BTEX/MTBE
2.5'	ND	---
5'	ND	---
7.5'	ND	---
10'	ND	---
15'	ND(ND)	---
20'	ND	---
25'	ND	---
30'	19	---
35'	2,200	---
40'	3,600	ND
45'	ND	---
50'	ND	---

16144-B4

DEPTH	TPH-D	BTEX/MTBE
5'	180	ND
10'	ND	---
15'	ND	---
20'	ND	---
25'	ND	---
27.5'	ND	---
30'	ND	---
35'	750	---
40'	ND	---
45'	ND	---
50'	ND	---
55'	ND	---
60'	ND(ND)	---

DEPTH	TPH-D
0'	11(f)

B13

DEPTH	TPH-D
5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
30'	ND
35'	ND
40'	ND
45'	ND
50'	ND
55'	ND

16144-B5

DEPTH	TPH-D
5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
30'	ND
35'	ND
40'	ND
45'	ND
50'	ND

16144-B6

DEPTH	TPH-D
2.5'	ND
5'	ND
7.5'	ND
10'	ND
15'	ND
20'	ND
25'	ND
27.5'	ND
30'	ND
35'	ND(ND)
40'	ND
45'	ND
50'	ND

TOP OF CANYON WALL
CURB
ASPHALT
EXISTING CONCRETE BUILDING PADS
ELEVATED TRANSFORMER PAD
EXISTING CONCRETE DITCH
CONCRETE SUMP
BUILDING 16144
REFRIGERATION EQUIPMENT
SOIL NOT SAMPLED
B10
B11
B12
B13
B14
SS1
SS2
SS3
A
A'

LEGEND

- Approximate limits of former UST excavation
- Soil Boring (2005 Investigation)
- Tank excavation confirmation sample (1996)
- Surface Soil Grab Sample (2005 Investigation)
- Water Line Along Edge of Canyon
- Soil boring (2000 Investigation)
- Soil boring (1991/1992 investigation)
- Monitoring well (2000 Investigation)
- TPH-G: Total Petroleum Hydrocarbons as Gasoline (mg/kg)
- TPH-D: Total Petroleum Hydrocarbons as Diesel (mg/kg)
- TRPH: Total Recoverable Petroleum Hydrocarbons (mg/kg)
- ND: Not detected at or above the detection limit
- BTEX/MTBE: Benzene, toluene, ethylbenzene, xylenes and methyl tert-butyl ether (mg/kg)
- --- Not analyzed
- (f) Chromatogram does not exactly match diesel pattern, displayed heavier fuel pattern
- A——A' Cross section A-A' (see figure 3-3)

0 20 40
scale feet

Figure 3-1
SOIL BORING LOCATIONS AND ANALYTICAL RESULTS
UST SITE 16144
MCB CAMP PENDLETON

SES-TECH

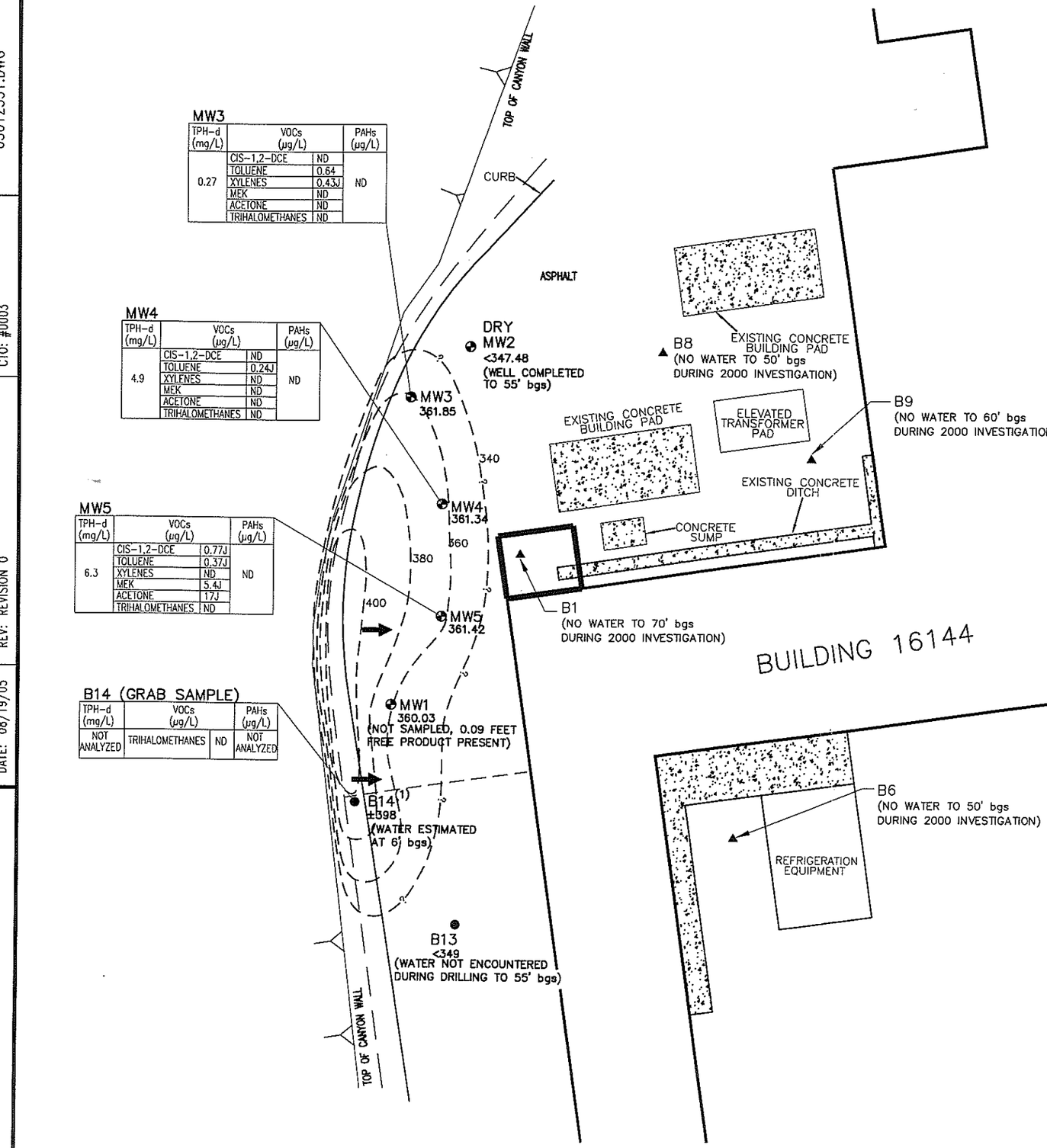
P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012531.DWG
PLOT/UPDATE: SEP 14 2005 15:59.53

DRAWING NO: 05012531.DWG

DCN: SES-TECH-05-0125 | CTO: #0003

APPROVED BY: MC | CHECKED BY: WB | REV: REVISION 0

DRAWN BY: MD | DATE: 08/19/05



LEGEND

☐	Approximate limits of former UST excavation
●	Soil Boring (2005 Investigation)
◒	Monitoring well
▲	Soil Boring (2000 Investigation)
— — —	Water Line Along Edge of Canyon
TPH-d	Total Petroleum Hydrocarbons as Diesel
VOCs	Volatile Organic Compounds
PAHs	Polynuclear Aromatic Hydrocarbons
CIS-1,2-DCE	Cis-1,2-Dichloroethene
MEK	Methyl Ethyl Ketone
(1)	Elevation of Groundwater Approximate
ND	Not detected at or above the detection limit
J	Estimated Value
mg/L	Milligrams per Liter
µg/L	Micrograms per Liter
→	Direction of Groundwater Flow
bgs	Below Ground Surface
'	Feet

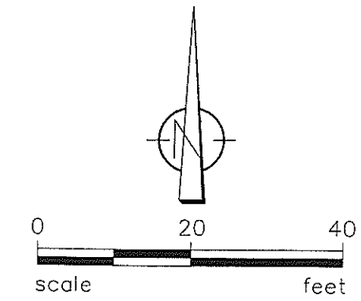


Figure 3-2
GROUNDWATER ELEVATION AND CONTAMINANT CONCENTRATION MAP, JULY 2005
SITE 16144

MCB CAMP PENDLETON

SES-TECH

P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012532.DWG
PLOT/UPDATE: SEP 07 2005 15:24:13

DRAWING NO: 05012533.DWG
DCN: SES-TECH-05-0125
CTO: #0003
APPROVED BY: MC
CHECKED BY: WB
REV: REVISION 0
DRAWN BY: MD
DATE: 09/15/05

SOUTH
A

NORTH
A'

ELEVATION (FEET MEAN SEA LEVEL)

400
390
380
370
360
350
340

WATER PIPELINE

B14

TD=15'

SLOPE OF
WINDMILL CANYON

SANTIAGO FORMATION

SILTSTONE

SILTY SAND

SS1
TPH-D[1] 11 mg/kg

16144-B3/MW1

B16144-3

B12/MW5

16144-B1

UST 16144
(2) 1,000-GALLON
DIESEL FUEL UST
(REMOVED)

16144-B9

DEPTH	TPH-G	TPH-D
11'	ND	370

DEPTH	TPH-G	TPH-D
11'	ND	8,900

DEPTH	TPH-G	TPH-D
11'	ND	1,900

16144-A

16144-B

16144-C

730
2,000
5,200
1.5
19
2,200
3,600

ND

EXTENT OF
TPH-D IN SOIL

TD=45'

TD=50'

TD=70'

TD=60'

DECOMPOSED
GRANITIC ROCK

FILL

SILTSTONE

SANDSTONE

LEGEND

TPH-D	Total petroleum hydrocarbons as diesel (mg/kg).
TPH-G	Total petroleum hydrocarbons as gasoline (mg/kg).
ND	Not detected at or above method detection limit
▽	Depth to groundwater
— — —	Approximate formation contact, queried where inferred
(1)	Chromatogram does not exactly match diesel pattern, displayed heavier fuel pattern
⌜ ⌝ ⌞ ⌟	Approximate limits of former UST excavation

16144-B7/MW2 — Boring designation
Approximate existing topography
ND — Boring soil sample location and TPH-D concentration (mg/kg)
Approximate boring location
Approximate well screen interval
TD=60' — TD=Total boring depth in feet
Soil sample

Asphalt/concrete
Silty Sand
Siltstone
Sandstone

No Vertical Exaggeration
0 10 20
scale feet

Figure 3-3
CROSS SECTION A-A'
SITE 16144
MCB CAMP PENDLETON
SES-TECH

P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012533.DWG
PLOT/UPDATE: SEP 15 2005 08:13:31

APPENDIX A

SOIL BORING PERMIT, BORING LOGS, AND WELL SAMPLING FORMS

TETRA TECH EC, INC.

August 26, 2005

Monitoring Well Permit Clerk
Site Assessment and Mitigation Program
County of San Diego, Department of Environmental Health
P.O. Box 129261
San Diego, CA 92112-9261

Subject: **Monitoring Well Destruction and Installation Notification, UST Site 16144, Marine Corps Base (MCB) Camp Pendleton, California**

Reference: Permit No. LMON 103087

Well Permit Clerk:

Per your request, Tetra Tech EC is submitting the attached document in fulfillment of the conditions of monitoring well destruction and well installation permit number LMON 103087. The permit was issued on May 10, 2005 and the County was given 48 hours notice prior to commencement of the work of each phase of work. The work was conducted for the following UST Site:

Property Owner:	United States Marine Corps
Site Address:	UST Site 16144 16 Area, MCB Camp Pendleton, California 92055
Contact Person:	Mr. Chet Storrs RCRA Division Head

From July 11 through 13, 2005, 5 borings were advanced of which three were converted to groundwater monitoring wells (MW3, MW4 and MW5). The remaining two borings (total depth 55 and 14 feet bgs) were backfilled to 1 foot bgs and the surface was completed with asphalt to match existing conditions; the following volumes and materials were used to backfill the borings and in construction of each of the wells:

Boring/ Well	Filter Pack #2/12 sand (cubic feet)	Transition Seal Bentonite chips (cu bic feet)	Bentonite Grout (cubic feet)	Concrete Competion (cubic feet)
B-10/MW3	6	1	6	1
B-11/MW4	6	1	6	1
B-12/MW5	5	1	6	1
B-13	NA	NA	15	.5
B-14	NA	NA	4	.5

SGS

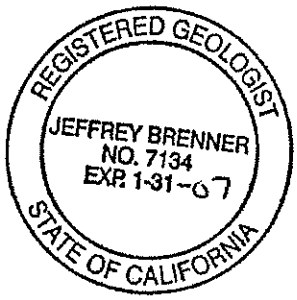
1940 E. Deere Avenue, Suite 200, Santa Ana, CA 92705
Tel 949.756.7500 Fax 949.756.7560
www.tetratech.com

The attached documents include boring/monitoring wells log with well completion information, a signed and stamped Registered Geologist certification letter for the boring/monitoring well logs, and a well location map.

If you have any questions regarding this matter, please contact the undersigned.

Sincerely,
Tetra Tech EC

Jeff Brenner, PG
Senior Geologist



Attachments:
Copy of Permit
Location Map
Registered Geologist Certification Letter
Boring Logs

COUNTY OF SAN DIEGO
DEPARTMENT OF
ENVIRONMENTAL
HEALTH

REG 06-20-05 14:04
OSE 172179
1

141 141 428W26$45.00
HK $45.00

MODIFIED
PERMIT #LMON103087
A.P.N. #101-520-14-00
EST #H05939-031

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM

NG WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

: AREA 16, BUILDING 16144

ESS: MCB CAMP PENDLETON, CA 92055

R: **INSTALL 3 GROUNDWATER MONITORING WELLS & 2 BORINGS**

PERMIT APPROVAL DATE: MAY 10, 2005

PERMIT EXPIRES ON: SPETEMBER 7, 2005

RESPONSIBLE PARTY: US NAVY/MARINE CORPS

PERMIT CONDITIONS:

1. **The revised well construction proposed in fax dated 5-9-05 by TetraTech FW is approved.**

2. **Contact the Regional Water Quality Control Board for their comments and concerns regarding the proposed activities.**

3. Wells must have a **minimum 3-foot concrete surface seal.** The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.

4. All borings must be sealed from the bottom of the boring to the ground surface with an approved sealing material as specified in California Well Standards Bulletin 74-90, Part III, Section 19 D. **Drill cuttings are not an acceptable fill material.**

5. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4. (**http://www.sdcounty.ca.gov/deh/lwq/sam/manual_guidelines.html**). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.

6. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.

7. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

NOTE: **This permit does not constitute approval of a work plan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Work plans are required for all unauthorized release investigations in San Diego County.**

APPROVED BY: Carol Spangenberg DATE: 06/20/2005
CAROL SPANGENBERG

NOTIFIED: 6/20/05 EP

DEH:SAM-9075 (3/05)

WELL INSTALLATION

Statement of Certification

I, Jeffrey Brenner, certify that, to the best of my knowledge, the data and information presented in the boring and well completion logs listed below are accurate and complete. Field activities and documentation were performed in accordance with accepted practices and procedures.

Jeffrey Brenner, CA RG # 7134

REGISTERED GEOLOGIST
JEFFREY BRENNER
NO. 7134
EXP. 1-31-07
STATE OF CALIFORNIA

PERMIT NO. LMON 103087

MCB Camp Pendleton, Area 17, UST Site 16144

- Monitoring Well MW3
- Monitoring Well MW4
- Monitoring Well MW5

TETRA TECH EC, INC.

LOG OF BORING B-10/MW-3

(Sheet 1 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,273.27 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,806.31 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 50.0 Feet bgs	Top of Casing Elevation: 402.53 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
		Flushed Mounted Well Vault							0 to 0.2 ft. ASPHALT PAVEMENT	
		Concrete							0.2 to 6 ft. SILTY SAND (Artificial Fill): Brown, 75% Fine to Medium Subrounded Sand, 25% Non-Plastic Fines, Trace Gravel, Slightly Moist	
		4"Schedule 40 PVC Riser					SM			
5			NA		0003-046	0.6				
		Bentonite Grout							6 to 13 ft. POORLY GRADED SAND WITH SILT: Light Grey to Tan, 90% Fine to Medium Rounded Sand, 10% Non-Plastic Fines, No Odor, Dry, Poorly Graded	
10			50		0003-047	0.2	SP-SM			
									13 to 22 ft. SILT WITH SAND: Greenish-Grey, 75% Non-Plastic Fines, 15% Fine Sand, 10% Plastic Fines, No Odor, Moist, Well Indurated	
15			50		0003-048	2.2	ML			

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
bgs = below ground surface
NA = not applicable
NAD = North American Datum
NAVD = North American Vertical Datum
PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-10/MW-3

(Sheet 2 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,273.27 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,806.31 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 50.0 Feet bgs	Top of Casing Elevation: 402.53 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			50		0003-049	0	ML			
25		Bentonite Seal	35 50		0003-050	0	SP		22 to 29 ft. POORLY GRADED SAND: Tan to Grey, Moist, 95% Fine to Coarse, Round to Subrounded Sand, 5% Non-Plastic Fines, No Odor, Poorly Graded, Well Indurated	
30		4" Schedule 40 PVC Factory-Slotted Screen 0.010" Slot-Size	35 50		0003-051	3.3	ML		29 to 33 ft. SILT: Tan to Grey, 90% Non-Plastic Fines, 10% Fine Sand, No Odor, Moist, Well Indurated, Poorly Graded	
35		Filter Pack #2/12 Sand	50		0003-052	1.6	SP		33 to 47 ft. POORLY GRADED SAND: Tan to Grey, 95% Fine Rounded Sand, 5% Non-Plastic Fines, Moist, Loose	

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
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PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-10/MW-3

(Sheet 3 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,273.27 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,806.31 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 50.0 Feet bgs	Top of Casing Elevation: 402.53 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			50		0003-053	0.8	SP			
45			50		0003-054	0.5				
							DG		47 to 50 ft. DECOMPOSED GRANITE: No Sample Collected. Difficult Drilling	
50									Boring teminated at total depth of 50 feet bgs.	
55										

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-11/MW-4

(Sheet 1 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,245.25 Feet (NAD 83)
Date Started: July 11, 2005	Easting: 6,233,808.91 Feet (NAD 83)
Date Completed: July 12, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
		Flushed Mounted Well Vault							0 to 0.2 ft. ASPHALT PAVEMENT	
		Concrete							0.2 to 7 ft. SILTY SAND (Artificial Fill): Brown to Grey, 75% Sand, 25% Non-Plastic Fines, Strong Hydrocarbon Odor, Moist, Loose, Soft, Poorly Graded	
		4"Schedule 40 PVC Riser					SM			
5			25 50		0003-009	7.2				
		Bentonite Grout							7 to 12.5 ft. SILTY SAND: Grey to Greenish-Grey, 85% Sand, 10% Non-Plastic Fines, 5% Plastic Fines, Strong Hydrocarbon Odor, Moist, Loose to Moderately Dense, Moderately Stiff, Moderately to Poorly Indurated, Poorly Graded	
10			35 45 50		0003-010	130	SM			
									12.5 to 27 ft. SANDY SILT: Greenish-Grey, 70% Non-Plastic Fines, 20% Sand, 10% Plastic Fines, Strong Hydrocarbon Odor, Dry, Very Dense, Stiff, Very Well Indurated	
15			30 50		0003-011	1.7	ML			

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
bgs = below ground surface
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PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-11/MW-4

(Sheet 2 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,245.25 Feet (NAD 83)
Date Started: July 11, 2005	Easting: 6,233,808.91 Feet (NAD 83)
Date Completed: July 12, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			40 50		0003-012	0.3	ML			
25		Bentonite Seal	35 50		0003-013	0	SM		27 to 29 ft. SILTY SAND: Tan to Grey, 75% Fine Sand, 25% Non-Plastic Fines, No Odor, Moist, Loose, Soft, Well Indurated	
							CH		29 to 30 ft. 6" to 1' thick Dark Lense of Clay like material with gold colored flakes, Saturated with Hydrocarbons at Approximately 29' to 30'.	
30		4" Schedule 40 PVC Factory-Slotted Screen 0.010" Slot-Size	50		0003-014	0			30 to 45 ft. SILTY SAND: Tan to Grey, 75% Fine Sand, 25% Non-Plastic Fines, No Odor, Moist, Loose, Soft, Well Indurated	
35		Filter Pack #2/12 Sand	50		0003-015		SM			

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-11/MW-4

(Sheet 3 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,245.25 Feet (NAD 83)
Date Started: July 11, 2005	Easting: 6,233,808.91 Feet (NAD 83)
Date Completed: July 12, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			50		0003-016	0	SM			
45			50		0003-17 0003-18 (Dup)	0.1	ML		45 to 51 ft. SILT WITH SAND: Brown to Greenish-Brown, 70% Non-Plastic Fines, 20% Sand, 10% Plastic Fines, Dry, Moderately Dense, Moderately Stiff, Poorly Graded	
50			50		0003-019	0	DG		51 to 55 ft. DECOMPOSED GRANITE: Difficult Drilling	
		Slough								
55		Boring terminated at total depth of 55 feet bgs.							Boring teminated at total depth of 55 feet bgs.	

Notes: Reviewed By: J. Brenner, P.G.
AMSL = above mean sea level
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-12/MW-5

(Sheet 1 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,231.84 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.16 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 45.0 Feet bgs	Top of Casing Elevation: 403.29 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
		Flushed Mounted Well Vault							0 to 0.2 ft. ASPHALT PAVEMENT	
		Cement							0.2 to 6 ft. SILTY SAND (Artificial Fill): Brown to Greenish-Grey, 85% Non-Plastic Fines, 15% Sand, Slight Hydrocarbon Odor, Moist, Loose, Soft, Poorly Graded	
		4"Schedule 40 PVC Riser					SM			
5			30 50		0003-023	0				
		Bentonite Grout							6 to 22 ft. SILT WITH SAND: Grey to Greenish-Grey, 85% Non-Plastic Fines, 15% Sand, Slight Hydrocarbon Odor, Dry, Loose, Soft, Poorly Graded Below 14 feet bgs material becomes hard, dense with medium plasticity. No Odor (Sample can be rolled).	
10			35 50		0003-024	0	ML			
15			35 50		0003-025	0				

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
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PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-12/MW-5

(Sheet 2 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,231.84 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.16 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 45.0 Feet bgs	Top of Casing Elevation: 403.29 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			35		0003-026	0	ML			
25		Bentonite Seal	50		0003-027	0			22 to 43 ft. SILTY SAND: Tan to Grey, 80% Sand, 20% Non-Plastic Fines, No Odor, Moist, Loose, Soft	
30		4" Schedule 40 PVC Factory-Slotted Screen 0.010" Slot-Size	50		0003-028	0.7	SM			
35		Filter Pack #2/12 Sand	50		0003-029	0				

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
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PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-12/MW-5

(Sheet 3 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,231.84 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.16 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 45.0 Feet bgs	Top of Casing Elevation: 403.29 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			60 60		0003-030	0	SM			
45		Slough	50		0003-031	0	DG		43 to 45 ft. DECOMPOSED GRANITE Difficult Drilling	
									Boring terminated at total depth of 45 feet bgs.	
50										
55										

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-13

(Sheet 1 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,174.48 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.48 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 404.43 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
		Ashpalt							0 to 0.2 ft. ASPHALT PAVEMENT	
							SM		0.2 to 7 ft. SILTY SAND (Artificial Fill): Greenish-Grey to Brown, 80% Non-Plastic Fines, 20% Sand, No Odor, Moist, Poorly Graded	
5			25 25		0003-035	0				
							ML		7 to 15 ft. SANDY SILT: Greenish-Grey, Dry, 60% Non-Plastic Fines, 40% Fine Rounded Sand, No Odor, Loose, Poorly Graded	
10		Bentonite Grout Backfill	50		0003-036	0.1				
15			35 50		0003-037	0.1				
							ML		15 to 30 ft. SANDY SILT: Greenish -Grey, 60% Non-Plastic Fines, 30% Fine Rounded Sand, 10% Plastic Fines, Dry, Well Indurated	

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-13

(Sheet 2 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,174.48 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.48 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 404.43 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			50		0003-038	0				
25			80		0003-039	0	ML			
30			100		0003-040	0			30 to 40 ft. SILTY SAND: Tan to Grey, 60% Fine Rounded Sand, 40% Non-Plastic Fines, No Odor, Moist, Loose, Poorly Graded	
35			100		0003-041	0	SM			

Notes: Reviewed By: J. Brenner P.G.
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B-13

(Sheet 3 of 3)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: Split-Spoon
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,174.48 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,808.48 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 404.43 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			60		0003-042	0			40 to 53 ft. SILTY SAND: Brown to Grey, 60% Fine to Medium Rounded Sand, 30% Non-Plastic Fines, 10% Plastic Fines, Dry, Poorly Graded Well Indurated Below 40 feet bgs. Very Well Indurated Below 50 feet bgs.	
45			70		0003-043	0	SM			
50			70		0003-044	0				
							DG		53 to 55 ft. DECOMPOSED GRANITE	
55			60		0003-045	0			Boring terminated at total depth of 55 feet bgs.	

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
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NA = not applicable
NAD = North American Datum
NAVD = North American Vertical Datum
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TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

TETRA TECH EC, INC.

LOG OF BORING B14

(Sheet 1 of 1)

Client: NFECSW	Drilling Company: West Hazmat
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger
Project Number: 2973	Sampling Method: NA
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.
Geologist: J. Brenner	Northing: 2,053,194.75 Feet (NAD 83)
Date Started: July 12, 2005	Easting: 6,233,800.39 Feet (NAD 83)
Date Completed: July 13, 2005	Ground Surface Elevation: NA
Total Depth: 14.0 Feet bgs	Top of Casing Elevation: 403.95 Feet AMSL (NAVD 88)

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0		Asphalt							0 to 0.2 ft. ASPHALT PAVEMENT 0.2 to 14 ft. SILTY SAND (Artificial Fill): Brown to Grey, 75% Sand, 25% Non-Plastic Fines, Moist, Loose, Soft, Poorly Graded	
5		Bentonite Grout Backfill					SM			
10										
15										

Notes: Reviewed By: J. Brenner P.G.
AMSL = above mean sea level
bgs = below ground surface
NA = not applicable

PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST161-1.GPJ FSTRW_SA.GDT 8/26/05

TETRA TECH FW, INC.

FIELD WATER LEVEL MEASUREMENTS

Date: 7/21/05
Personnel: Tania Turpyn-Kaasla
Wendy Bryant
Weather: Sunny, hot

Project Name: UST SITE 16144
Project OFS: 2973.0040
Meaurement Device: Solinst
Comments —

Time	Well ID	Depth to Water from Measuring Point (feet AMSL)	Depth to Sediment from Measuring Point (feet AMSL)	Measuring Point / Comments
—	MW1	DTP = 42.36 DTW = 42.45	NM	.09' PSH
—	MW2	DRY	59.12	—
—	MW3	40.68	45.0	—
—	MW4	41.42	44.96	—
—	MW5	41.87	44.38	—

LOW-FLOW PURGING AND SAMPLING DATA SHEET

Project Name: UST Site 16144
Project Number: 2973-0080
Date: 7/21/05
Site Engineer(s): TTK / WB

Well Number: MW-3
Equipment: QED Sample Pro Mini Bladder Pump
Sample ID: 0003-057 Time: 1042
Contractor: Tetra Tech FW, Inc

Reference: Top of Casing	Before	After
Depth to Water (ft)	40.58	41.20
Depth of Well (ft)	45.00	
Depth to Top of Screen	35.00	
Screen Length (ft)	10.00	
Pump depth (ft)	44.00	
Pump Rate	80 mL/min	
Sample Pump Rate	80 mL/min	
System Volume	585 mL	

Total Volume Purged (mL): 2000

Notes/Calcs:

System Vol (mL) = (2.4*H)+470
where
2.4mL/ft = tubing volume per foot (1/8"ID)
H = length of tubing in feet
470 mL = Bladder volume + Flowthru cell volume

Time	pH	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comments
1016									Pump on
1026	6.80	1.71	5.6	25.9	32	7.70	40.74	800	Clear, no odor
1029	6.80	1.69	5.13	25.4	44	8.4	40.78	1040	" "
1032	6.78	1.66	4.28	25.4	51	12.2	40.79	1280	" "
1035	6.79	1.67	4.06	25.6	57	10.9	40.79	1520	" "
1038	6.79	1.66	3.98	26.2	60	10.0	40.79	1760	" "
1041	6.80	1.67	3.91	26.5	66	10.0	40.79	2000	" "
Stability	± 0.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%			

Hach Fe^{2+} N/A

Samples were collected directly from pump unless otherwise noted.

LOW-FLOW PURGING AND SAMPLING DATA SHEET

Project Name: UST Site 16144
Project Number: 2973.0080
Date: 7-2-15
Site Engineer(s): W. Bryant, T. Tarpin-Kearsley

Well Number: MW-4
Equipment: QED Sample Pro Mini Bladder Pump
Sample ID: 0003-0S8 Time: 1135
Contractor: Tetra Tech FW, Inc

Reference: Top of Casing	Before	After
Depth to Water (ft)	41.30	41.70
Depth of Well (ft)	44.96	
Depth to Top of Screen	1035.00	
Screen Length (ft)	10.00	
Pump depth (ft)	44.00	
Pump Rate	80 mL/min	
Sample Pump Rate	80 mL/min	
System Volume	565	

Total Volume Purged (mL): 1920

Notes/Calcs:

System Vol (mL) = (2.4*H)+470
where
2.4mL/ft = tubing volume per foot (1/8"ID)
H = length of tubing in feet
470 mL = Bladder volume + Flowthru cell volume

Time	pH	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comments
1110									pump on
1116	6.53	1.84	3.88	25.8	109	21.8	41.44	480	clear, no odor
1119	6.48	1.80	3.22	24.9	100	21.7	41.45	720	" "
1122	6.40	1.78	2.02	24.8	93	19.1	41.47	960	" "
1125	6.38	1.78	1.81	24.9	89	20.7	41.48	1200	" "
1128	6.37	1.78	1.61	24.8	86	17.7	41.50	1440	" "
1131	6.37	1.78	1.49	24.7	83	15.9	41.52	1680	" "
1134	6.37	1.79	1.45	24.7	81	15.6	41.54	1920	" "
Stability:	± 0.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%			

Hach Fe^{2+} N/A

Samples were collected directly from pump unless otherwise noted.

LOW-FLOW PURGING AND SAMPLING DATA SHEET

Project Name: UST Site 16144
Project Number: 2973.0003
Date: 7/21/05
Site Engineer(s): TK/WT

Well Number: MW-5
Equipment: QED Sample Pro Mini Bladder Pump
Sample ID: 0003-059 Time: 1256
Contractor: Tetra Tech FW, Inc

Reference: Top of Casing

	Before	After
Depth to Water (ft)	41.73	42.07
Depth of Well (ft)	44.38	
Depth to Top of Screen	≈ 34.00	
Screen Length (ft)	10.00	
Pump depth (ft) WT 7/21/05	~~43.50~~ 43.50	
Pump Rate	75 mL/min	
Sample Pump Rate	75 mL/min	
System Volume	585	

Total Volume Purged (mL): 1950

Notes/Calcs:

System Vol (mL) = (2.4*H)+470
where
2.4mL/ft = tubing volume per foot (1/8"ID)
H = length of tubing in feet
470 mL = Bladder volume + Flowthru cell volume

Time	pH	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comments
1230									pump on
1235	6.61	3.08	2.52	27.7	-72	144.0	41.95	375	Slight Hydrocarbon odor
1238	6.53	3.45	1.30	26.9	-84	162.0	—	600	" "
1241	6.52	3.33	0.80	26.7	-92	150.0	42.02	825	" "
1243	6.52	3.28	0.59	26.6	-94	161.0	42.03	1050	" "
1246	6.52	3.16	0.45	26.6	-98	160.0	42.05	1275	" "
1249	6.54	3.06	0.33	26.5	-103	159.0	42.07	1500	" "
1252	6.58	2.98	0.26	26.6	-109	150.0	42.09	1725	" "
1255	6.60	2.80	0.19	26.6	-112	145.0	42.11	1950	" "
1256	COLLECT SAMPLES								
Stability	± 0.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%			

Hach Fe^{2+} N/A

Samples were collected directly from pump unless otherwise noted.

APPENDIX B

NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. CA2170023533	Manifest Document No. 51361	2. Page 1 of 1

3. Generator's Name and Mailing Address
Tetra Tech FW, Inc. 1230 Columbia Street Suite 500
San Diego, CA 92101 5W7
Attn: Nate Deleston

4. Generator's Phone ( )

5. Transporter 1 Company Name: General Environmental Mgmt Inc.	6. US EPA ID Number: CAD983649880	A. State Transporter's ID
		B. Transporter 1 Phone: ~~800-326-1011~~
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID
		D. Transporter 2 Phone
9. Designated Facility Name and Site Address: DK Environmental, 3650 East 26th Street, Vernon, CA 90023	10. US EPA ID Number: CAT080033681	E. State Facility's ID
		F. Facility's Phone: 323-268-5056

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. Non hazardous liquid (Well Water)	2	DM	EST. 110	G
b. Non hazardous solid (Soil)	18 ~~20~~	DM	EST. 12.500	P
c.				
d.				

G. Additional Descriptions for Materials Listed Above
11a)1x55g-Well Water-Approval#340901-24
11b)~~20~~ 18 x55g-Soil-Approval#340901-23
UST SITE 16144

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Phone: (800) 326-1011 (G.E.M.)
PO#056289

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
[illegible]	[signature]			

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
JOSE T VASQUEZ	[signature]	7	22	05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

APPENDIX C

LABORATORY RESULTS AND CHAIN-OF-CUSTODY FORMS

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12422

PROJECT NAME: UST Site 16144
PURCHASE ORDER NO.:
PROJECT LOCATION: Camp Pendleton
PROJECT NO.: 2973 0003
SAMPLER NAME:
AIRBILL NUMBER: Courier
PROJECT CONTACT: Sonya Acheson
PROJECT CONTACT PHONE NUMBER: 949 756-7549
LABORATORY NAME: EMAX
LABORATORY ID (FOR LABORATORY): 05G055 / 05G055A

Project Information Section
Do not submit to Laboratory

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH 8015B	VOCs 8260B	PAHs 8310	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-008	7-11-05	0958	3	X		Soil	3 day		X		cancelled.	Site 16144 B11	10	15	Reg
0003-009	7-11-05	1004	4	X		Soil	3 day	X	X			B11	5.0	5.5	Reg
0003-010	7-11-05	1010	4	X		Soil	3 day	X	X			B11	10.0	11.5	Reg
0003-011	7-11-05	1016	4	X		Soil	3 day	X	X			B11	15.0	16.5	Reg
0003-012	7-11-05	1020	4	X		Soil	3 day	X	X			B11	20.0	21.5	Reg
0003-013	7-11-05	1037	4	X		Soil	3 day	X	X			B11	25.0	26.5	Reg
0003-014	7-11-05	1046	4	X		Soil	3 day	X	X	X	Requested 7/25/05	B11	30.0	31.5	Reg
0003-015	7-11-05	1113	1	X		Soil	3 day	X				B11	35.0	36.5	Reg
0003-016	7-11-05	1123	1	X		Soil	3 day	X				B11	40.0	41.5	Reg
0003-017	7-11-05	1137	1	X		Soil	3 day	X				B11	45.0	46.5	Reg

RELINQUISHED BY (Signature): [signature] DATE: 7/11/05 RECEIVED BY (Signature): [signature]
COMPANY: [illegible] TIME: 1540 COMPANY: EMAX
RELINQUISHED BY (Signature): DATE: RECEIVED BY (Signature):
COMPANY: TIME: COMPANY:
RELINQUISHED BY (Signature): DATE: RECEIVED BY (Signature):
COMPANY: TIME: COMPANY:

LABORATORY INSTRUCTIONS/COMMENTS: Hold [illegible] sample for [illegible] analysis
+VOCs [illegible] 10 day TAT

COMPOSITE DESCRIPTION:

SAMPLING COMMENT:

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12423

PROJECT NAME: UST Site 16144	PURCHASE ORDER NO.:	LABORATORY NAME: EMAX	**Project Information Section Do not submit to Laboratory**
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003		
SAMPLER NAME: Dennis Bryant	AIRBILL NUMBER: Courier	LABORATORY ID (FOR LABORATORY): 05G055 / 05G055A	
PROJECT CONTACT: Jack Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549		

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH 8015B	* VOCs 8260B	PAHs 8310	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-019	7-11-05	1143	1		X	[illegible]	3 day	X				Site 16144 B11	45.0	45.5	[illegible]
0003-019	7-11-05	1156	1	X		[illegible]	3 day	X				B11	50.0	50.5	[illegible]
0003-020	7-11-05	1330	2	X		[illegible]	3 day	X				SS-1	\	\	[illegible]
0003-021	7-11-05	1335	2	X		[illegible]	3 day	X				SS-2	\	\	[illegible]
0003-022	7-11-05	1340	2	X		[illegible]	3 day	X				SS-3	\	\	[illegible]
0003-023	7-11-05	1410	4	X		[illegible]	3 day	X	X			B12	50.0	50.5	[illegible]
0003-024	7-11-05	1420	4	X		[illegible]	3 day	X	X			B12	[illegible]	[illegible]	[illegible]
0003-025	7-11-05	1435	4	X		[illegible]	3 day	X	X			B12	[illegible]	[illegible]	[illegible]
0003-026	7-11-05	1443	4	X		[illegible]	3 day	X	X			B12	[illegible]	[illegible]	[illegible]
0003-027	7-11-05	1451	4	X		[illegible]	3 day	X	X	X	Requested 7/25/05	B12	[illegible]	[illegible]	[illegible]

RELINQUISHED BY (Signature): [signature]	DATE: 7/11/05	RECEIVED BY (Signature): [signature]	LABORATORY INSTRUCTIONS/COMMENTS: Hold remaining sample for additional analysis. * VOCs 8260B 5 day TAT	SAMPLING COMMENT:
COMPANY: Tetra Tech	TIME: 1545	COMPANY: EMAX		
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	COMPOSITE DESCRIPTION	
COMPANY:	TIME:	COMPANY:		
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: SAMPLE CONDITION: ☐ INTACT ☐ BROKEN COOLER SEAL: ACT ☐ BROKEN	
COMPANY:	TIME:	COMPANY:		

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12424

PROJECT NAME: OSF Site 16144	PURCHASE ORDER NO.:
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Sevda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 05G055 / 05G055A

Project Information Section — Do not submit to Laboratory

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-E 8015B	VOCs 8260B		COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-028	7-11-05	1501	4	X		S	3 Day	X	X			Site 16144 B12	30.0	31.5	Reg 0
0003-029	7-11-05	1513	4		X	S	3 Day	X	X			B12	35.0	36.5	Reg 0
0003-030	7-11-05	1521	~~4~~ 1	X		S	3 Day	X	~~X~~	WB 7-11-05		B12	40.0	40.5	Reg 0
0003-031	7-11-05	1535	1	X		S	3 Day	X				B12	45.0	45.5	Reg 0

RELINQUISHED BY (Signature): [signature]	DATE: 7-11-05	RECEIVED BY (Signature): [signature]	
COMPANY: TETRA TECH	TIME: 1545	COMPANY: EMAX	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	
COMPANY:	TIME:	COMPANY:	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	
COMPANY:	TIME:	COMPANY:	

LABORATORY INSTRUCTIONS/COMMENTS: Hold remaining samples for additional analysis
* VOCs 8260B 10 Day TAT

COMPOSITE DESCRIPTION:

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ______ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT:

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

COPY

TABLE OF CONTENTS

CLIENT: **SES-TECH**

PROJECT: **CAMP PENDLETON, UST SITE 16144**

SDG: **05G055**

** - Not Requested

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-18-2005
EMAX Batch No.: 05G055

Attn: Sevda Aleckson

SES-TECH
1940 E. Deere Avenue, Suite 200
Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/11/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-008	G055-01	07/11/05	SOIL	CANCELLED
0003-009	G055-02	07/11/05	SOIL	TPH DIESEL
0003-010	G055-03	07/11/05	SOIL	TPH DIESEL
0003-011	G055-04	07/11/05	SOIL	TPH DIESEL
0003-012	G055-05	07/11/05	SOIL	TPH DIESEL
0003-013	G055-06	07/11/05	SOIL	TPH DIESEL
0003-014	G055-07	07/11/05	SOIL	TPH DIESEL
0003-015	G055-08	07/11/05	SOIL	TPH DIESEL
0003-016	G055-09	07/11/05	SOIL	TPH DIESEL
0003-017	G055-10	07/11/05	SOIL	TPH DIESEL
0003-018	G055-11	07/11/05	SOIL	TPH DIESEL
0003-019	G055-12	07/11/05	SOIL	TPH DIESEL
0003-020	G055-13	07/11/05	SOIL	TPH DIESEL
0003-021	G055-14	07/11/05	SOIL	TPH DIESEL
0003-022	G055-15	07/11/05	SOIL	TPH DIESEL
0003-023	G055-16	07/11/05	SOIL	TPH DIESEL
0003-024	G055-17	07/11/05	SOIL	TPH DIESEL
0003-025	G055-18	07/11/05	SOIL	TPH DIESEL
0003-026	G055-19	07/11/05	SOIL	TPH DIESEL

Sample ID	Control #	Col Date	Matrix	Analysis
0003-027	G055-20	07/11/05	SOIL	TPH DIESEL
0003-028	G055-21	07/11/05	SOIL	TPH DIESEL
0003-029	G055-22	07/11/05	SOIL	TPH DIESEL
0003-030	G055-23	07/11/05	SOIL	TPH DIESEL
0003-031	G055-24	07/11/05	SOIL	TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

GB/VS01-04

CHAIN-OF-CUSTODY RECORD

NUMBER 12422

056055

PROJECT NAME	PURCHASE ORDER NO
UST Site 16144	
PROJECT LOCATION	**PROJECT NO**
Camp Pendleton	2933.0003
SAMPLER NAME	**AIRBILL NUMBER**
	Courier
PROJECT CONTACT	**PROJECT CONTACT PHONE NUMBER**
Sevda Akerson	949-756-7549

ANALYSES REQUIRED

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-d 8015B	VOC's 8260 B	7/11/05
1	0003-008	7-11-05	0958	3	X		SOIL	3 day		X	
2	0003-009	7-11-05	1004	4	X		SOIL	3 day	X	X	
3	0003-010	7-11-05	1010	4	X		SOIL	3 day	X	X	
4	0003-011	7-11-05	1016	4	X		SOIL	3 day	X	X	
5	0003-012	7-11-05	1027	4	X		SOIL	3 day	X	X	
6	0003-013	7-11-05	1037	4	X		SOIL	3 day	X	X	
7	0003-014	7-11-05	1046	4	X		SOIL	3 day	X	X	
8	0003-015	7-11-05	1113	1	X		SOIL	3 day	X		
9	0003-016	7-11-05	1123	1	X		SOIL	3 day	X		
10	0003-017	7-11-05	1137	1	X		SOIL	3 day	X		

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
	7/11/05	
COMPANY	TIME	COMPANY
	1545	EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
	7/11/05	
COMPANY	TIME	COMPANY
EMAX	1730	emax
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 056055

COMMENTS

LABORATORY INSTRUCTIONS/COMMENTS
HOLD Remaining Sample For Additional
Analysis
If VOCs 8260B 10 DAY TAT

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: 9.8°C SAMPLE CONDITION: ☑ INTACT ☐ BROKEN
COOLER SEAL: ☑ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

EMAX LABORATORIES, INC.

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

G3/VS01-04

CHAIN-OF-CUSTODY RECORD

NUMBER 12423

05G055

PROJECT NAME	PURCHASE ORDER NO.	LABORATORY NAME
UST Site 16144		EMAX
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973.0003	LABORATORY ID (FOR LABORATORY): 05G055
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier	
PROJECT CONTACT: Selda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-752-7549	

ANALYSES REQUIRED: TPHd 8015B; * VOC's 8260B — WB 7/11/05

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPHd 8015B	* VOC's 8260B	COMMENTS
11	0003-018	7-11-05	1143	1		X	Soil	3 day	X		
12	0003-019	7-11-05	1156	1	X		Soil	3 day	X		
13	0003-020	7-11-05	1330	2	X		Soil	3 day	X		
14	0003-021	7-11-05	1335	2	X		Soil	3 day	X		
15	0003-022	7-11-05	1340	2	X		Soil	3 day	X		
16	0003-023	7-11-05	1410	4	X		Soil	3 day	X	X	
17	0003-024	7-11-05	1420	4	X		Soil	3 day	X	X	
18	0003-025	7-11-05	1435	4	X		Soil	3 day	X	X	
19	0003-026	7-11-05	1443	4	X		Soil	3 day	X	X	
20	0003-027	7-11-05	1451	4	X		Soil	3 day	X	X	

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
[signature]	7-11-05	[signature]
COMPANY: TtEMI	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature): [signature]	DATE: 7-11-05	RECEIVED BY (Signature): [signature]
COMPANY: EMAX	TIME: 1730	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS: Hold Remaining sample for Additional analysis
* VOCs 8260B 10 Day TAT

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ______ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

1003

EMAX LABORATORIES, INC.

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 12424

CHAIN-OF-CUSTODY RECORD

G3/VS01-04

056055

PROJECT NAME: UST Site 16144	PURCHASE ORDER NO.
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Serda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7545

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-d 8015B	VOCs 8260B*								COMMENTS
21	0003-028	7-11-05	1301	4	X		SOIL	3 day	X	X								
22	0003-029	7-11-05	1513	4		X	SOIL	3 day	X	X								
23	0003-030	7-11-05	1521	~~4~~ 1	X		SOIL	3 day	X	~~X~~	WB 7-11-05							
24	0003-031	7-11-05	1535	1	X		SOIL	3 day	X									

WB 7/11/05

WB 7/11/05

ANALYSES REQUIRED

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 056055

RELINQUISHED BY (Signature)	DATE 7-11-05	RECEIVED BY (Signature)	LABORATORY INSTRUCTIONS/COMMENTS: Hold remaining samples for additional analysis
COMPANY TETRA	TIME 1545	COMPANY EMAX	*VOCs 8260B 10 Day TAT
RELINQUISHED BY (Signature)	DATE 7/11/05	RECEIVED BY (Signature)	COMPOSITE DESCRIPTION
COMPANY EMAX	TIME 1730	COMPANY EMAX	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
COMPANY	TIME	COMPANY	TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
			COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Hanh Bui

From: Richard Beauvil
Sent: Thursday, July 14, 2005 10:59 AM
To: Hanh Bui
Subject: FW: Bottle order for Friday

Hi Hanh,

Please find the email below. Please put a copy in the master folder.

Thank you.

Richard.
-----Original Message-----
From: Richard Beauvil
Sent: Wednesday, July 13, 2005 5:26 PM
To: 'Tania.TurpijnKeasler@tteci.com'
Subject: RE: Bottle order for Friday

Hi Tanya,

Thank you. As per our phone conversation, we will hold the samples for 8260B until further notice. I will revise the login for 05G055 to remove the 8260 and log only tph-ext for 05G064 received yesterday. We will freeze the encores received yesterday for additional analysis later. For the 14 samples already extracted the price is $25.00/sample.

Thank you.

Richard.

-----Original Message-----
From: Tania.TurpijnKeasler@tteci.com [mailto:Tania.TurpijnKeasler@tteci.com]
Sent: Wednesday, July 13, 2005 4:24 PM
To: RBeauvil@emaxlabs.com
Subject: Bottle order for Friday

Richard,

I would like the following bottles, coolers and trip blanks delivered to Santa Ana on Friday. Call or e-mail if you have questions.

5 cases (12 ct) of 1 liter amber bottles
1 box (72 ct??) of Hcl preserved 40 mil voas.

Lets start with 5-6 coolers and 15 trip blanks.

I think that covers it. We plan to begin groundwater sampling on Monday and will need pick-ups through Thursday. We maybe able to skip some pick up days, as all the holding times are 14 days (I believe). We will be sampling under PO 053915 Site 1791 and CTO 03 PO 055850 Site 16144 That is the sap you didn't have I will attach a version of the text you have the tables. Analysis will be for TPH-d, PAHs and VOCs.

Thank you,

Tania

1005

(See attached file: 050277 Final SAP_Rev0.doc)

EMAX LABORATORIES, INC.

EMAX-SM02
Rev. 3
Appendix 2

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill		
☑ EMAX Courier	PHIL HATCHER	ECN	05G055
☐ Client Delivery		Recepient	N. LUNA
☐ Third Party		Date	7-11-05
		Time	17:30

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☐ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAG
Temperatures	☑ Cooler 1 T-	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
		NO ANALYSIS ON ALL TUBES	

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling AL
Date 07-11-05

SRF [signature]
Date 7/12/05

PM [signature]
Date 7/12/05

1007

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

EMAX LABORATORIES, INC.

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G055

5000

EMAX LABORATORIES, INC.

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G055

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Twenty-three (23) soil samples were received on 07/11/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3550B/8015B in accordance with SW846 3RD Edition.

1. **Holding Time**

   Analytical holding time was met. Extraction was performed and completed on 07/12/05.

2. **Calibration**

   Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. **Method Blank**

   Method blanks were free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   Recoveries were within QC limit except Hexacosane recovery in sampes G055-02 and -03 were bias high due to matrix interference; however, Bromobenzene an alternate surrogate met the QC criteria. Surrogate recoveries in sample G055-07 could not be evaluated due to dilution.

5. **Lab Control Sample/Lab Control Sample Duplicate**

   All recoveries were within QC limits.

6. **Matrix Spike/Matrix Spike Duplicate**

   Samples G055-08 and -22 were spiked. Recoveries were within QC limits.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

   Samples G055-02, -03 and -07 displayed diesel like fuel pattern.

   Samples G055-13 to -15 and -20 displayed heavier fuel pattern.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G055
Instrument ID : GCT050

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	DSG008SB	1	NA	07/12/0522:35	07/12/0512:00	TG11052A	TG11045A	DSG008S	Method Blank
LCS1S	DSG008SL	1	NA	07/12/0523:17	07/12/0512:00	TG11053A	TG11045A	DSG008S	Lab Control Sample (LCS)
MBLK2S	DSG009SB	1	NA	07/13/0513:15	07/12/0512:00	TG11073A	TG11070A	DSG009S	Method Blank
LCS2S	DSG009SL	1	NA	07/13/0512:33	07/12/0512:00	TG11072A	TG11070A	DSG009S	Lab Control Sample (LCS)
0003-009	G055-02	1	9.3	07/13/0509:03	07/12/0512:00	TG11067A	TG11058A	DSG008S	Field Sample
0003-010	G055-03	1	8.6	07/12/0523:59	07/12/0512:00	TG11054A	TG11045A	DSG008S	Field Sample
0003-011	G055-04	1	15.2	07/13/0500:41	07/12/0512:00	TG11055A	TG11045A	DSG008S	Field Sample
0003-012	G055-05	1	12.8	07/13/0501:23	07/12/0512:00	TG11056A	TG11045A	DSG008S	Field Sample
0003-013	G055-06	1	8.6	07/13/0502:05	07/12/0512:00	TG11057A	TG11045A	DSG008S	Field Sample
0003-014	G055-07T	20	10.2	07/13/0509:45	07/12/0512:00	TG11068A	TG11058A	DSG008S	Diluted Sample
0003-015	G055-08	1	6.2	07/13/0504:10	07/12/0512:00	TG11060A	TG11058A	DSG008S	Field Sample
0003-015MS	G055-08M	1	6.2	07/13/0504:52	07/12/0512:00	TG11061A	TG11058A	DSG008S	Matrix Spike Sample (MS)
0003-015MSD	G055-08S	1	6.2	07/13/0505:34	07/12/0512:00	TG11062A	TG11058A	DSG008S	MS Duplicate (MSD)
0003-016	G055-09	1	11.7	07/13/0506:16	07/12/0512:00	TG11063A	TG11058A	DSG008S	Field Sample
0003-017	G055-10	1	12.3	07/13/0506:58	07/12/0512:00	TG11064A	TG11058A	DSG008S	Field Sample
0003-018	G055-11	1	12.3	07/13/0507:40	07/12/0512:00	TG11065A	TG11058A	DSG008S	Field Sample
0003-019	G055-12	1	8.0	07/13/0508:22	07/12/0512:00	TG11066A	TG11058A	DSG008S	Field Sample
0003-020	G055-13	1	3.7	07/13/0522:24	07/12/0512:00	TG11086A	TG11082A	DSG009S	Field Sample
0003-021	G055-14	1	2.1	07/13/0523:06	07/12/0512:00	TG11087A	TG11082A	DSG009S	Field Sample
0003-022	G055-15	1	2.5	07/13/0523:48	07/12/0512:00	TG11088A	TG11082A	DSG009S	Field Sample
0003-023	G055-16	1	11.0	07/13/0513:57	07/12/0512:00	TG11074A	TG11070A	DSG009S	Field Sample
0003-024	G055-17	1	7.9	07/13/0514:39	07/12/0512:00	TG11075A	TG11070A	DSG009S	Field Sample
0003-025	G055-18	1	15.4	07/13/0515:21	07/12/0512:00	TG11076A	TG11070A	DSG009S	Field Sample
0003-026	G055-19	1	13.5	07/13/0516:04	07/12/0512:00	TG11077A	TG11070A	DSG009S	Field Sample
0003-027	G055-20	1	10.5	07/13/0516:46	07/12/0512:00	TG11078A	TG11070A	DSG009S	Field Sample
0003-028	G055-21	1	10.7	07/13/0517:28	07/12/0512:00	TG11079A	TG11070A	DSG009S	Field Sample
0003-029	G055-22	1	7.2	07/13/0520:18	07/12/0512:00	TG11083A	TG11082A	DSG009S	Field Sample
0003-029MS	G055-22M	1	7.2	07/13/0521:00	07/12/0512:00	TG11084A	TG11082A	DSG009S	Matrix Spike Sample (MS)
0003-029MSD	G055-22S	1	7.2	07/13/0521:42	07/12/0512:00	TG11085A	TG11082A	DSG009S	MS Duplicate (MSD)
0003-030	G055-23	1	10.9	07/13/0518:11	07/12/0512:00	TG11080A	TG11070A	DSG009S	Field Sample
0003-031	G055-24	1	9.7	07/13/0518:53	07/12/0512:00	TG11081A	TG11070A	DSG009S	Field Sample

FN - Filename
% Moist - Percent Moisture

5002

EMAX LABORATORIES, INC.

SAMPLE RESULTS

5003

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID:	0003-009	Date Analyzed:	07/13/05 09:03
Lab Samp ID:	G055-02	Dilution Factor:	1
Lab File ID:	TG11067A	Matrix :	SOIL
Ext Btch ID:	DSG008S	% Moisture :	9.3
Calib. Ref.:	TG11058A	Instrument ID :	GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	2000	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	167*	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

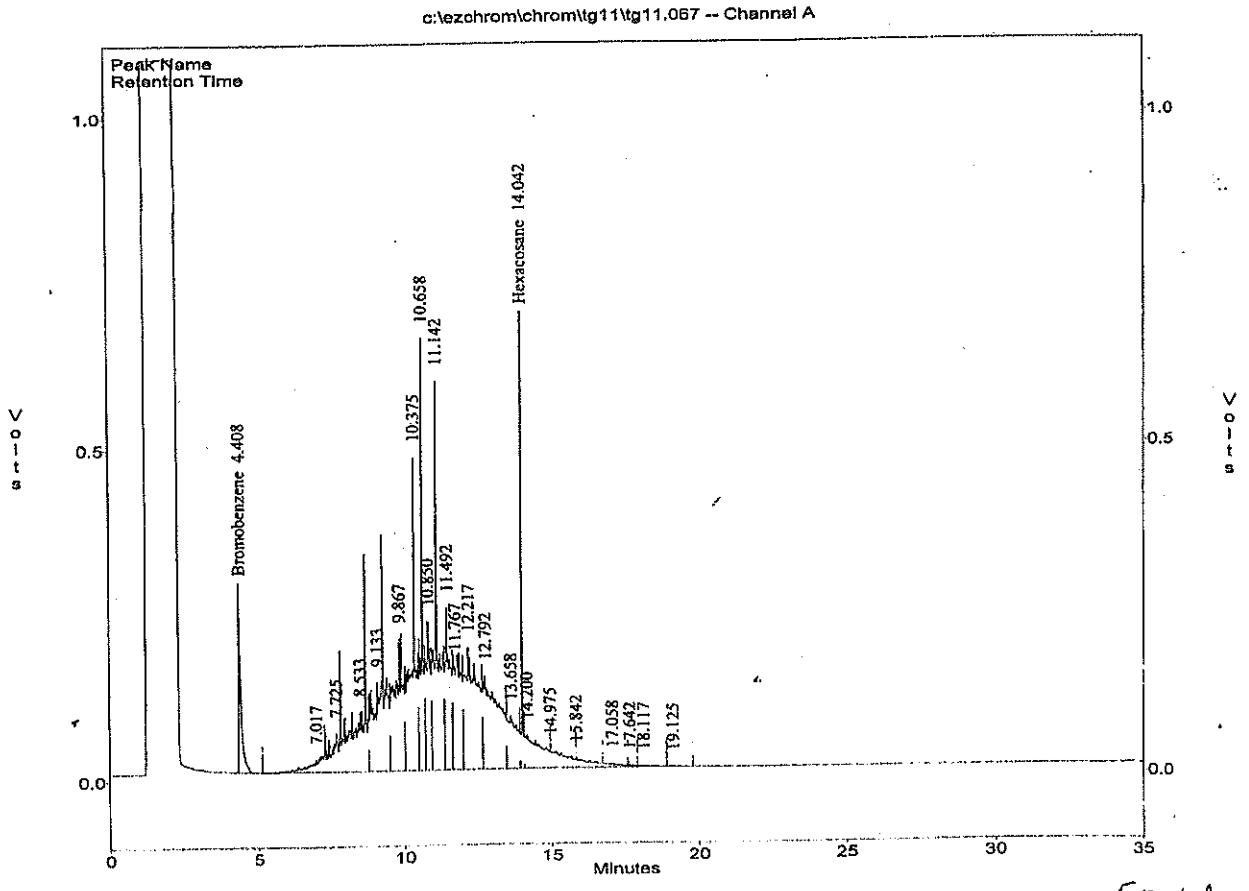
* : Out of QC limit due to matrix interference

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.067
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-02
Acquired : Jul 13, 2005 09:03:54
Printed : Jul 13, 2005 09:55:33
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1354733	16597.4	81.6
16	Hexacosane	14.042	1315645	31504.4	41.8
G1	Diesel(TOTAL)		48533396	25205.2	1925.5
G2	Diesel(C10-C24)		45031056	25139.0	1791.3
G3	Diesel(C10-C28)		47732740	25150.4	1897.9



5004A
7/13/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-010	Date Analyzed: 07/12/05 23:59
Lab Samp ID: G055-03	Dilution Factor: 1
Lab File ID: TG11054A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 8.6
Calib. Ref.: TG11045A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	1400	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	154*	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

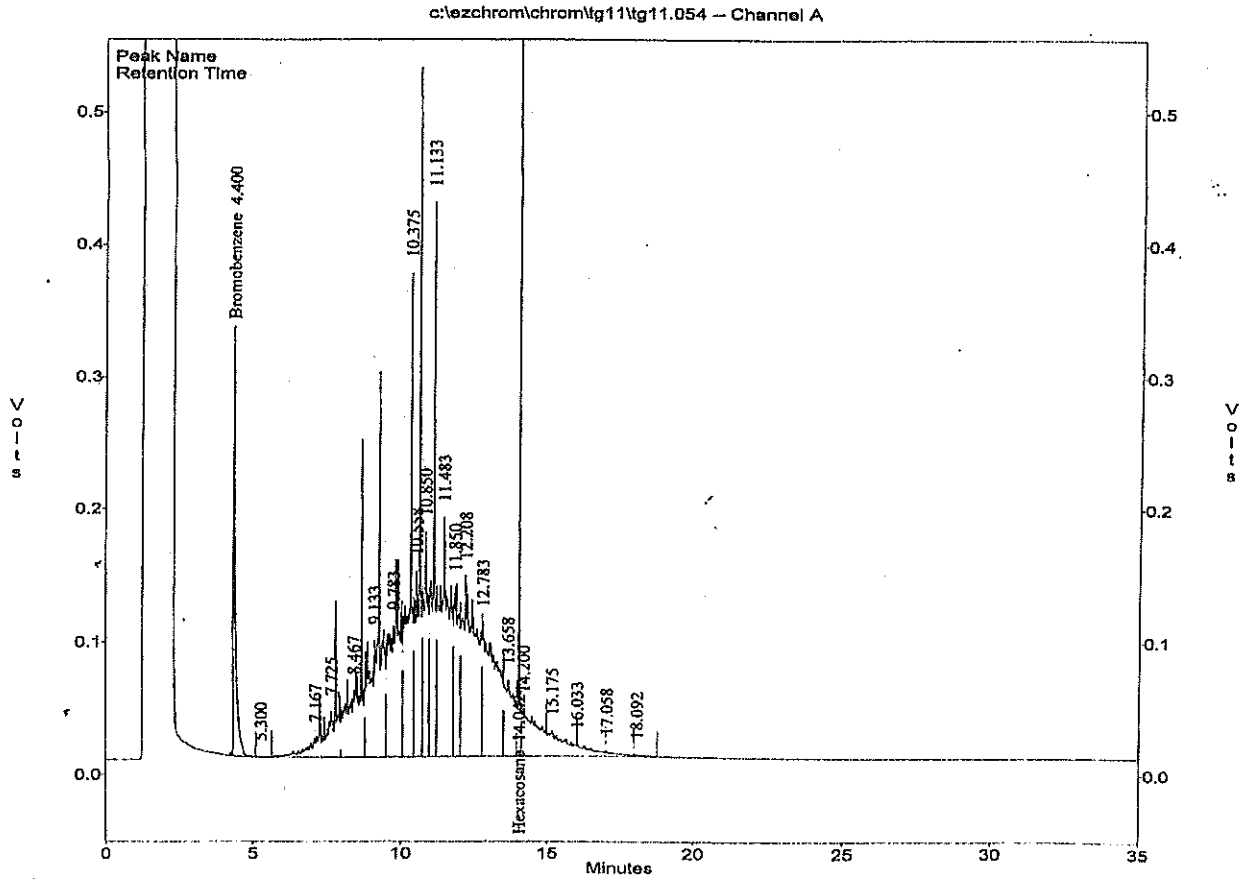
* : Out of QC limit due to matrix interference

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.054
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-03
Acquired : Jul 12, 2005 23:59:16
Printed : Jul 13, 2005 09:48:50
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1488644	16597.4	89.7
17	Hexacosane	14.042	1216618	31504.4	38.6
G1	Diesel(TOTAL)		34753800	25205.2	1378.8
G2	Diesel(C10-C24)		32261500	25139.0	1283.3
G3	Diesel(C10-C28)		33548708	25150.4	1333.9



5005A
7/13/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-011	Date Analyzed: 07/13/05 00:41
Lab Samp ID: G055-04	Dilution Factor: 1
Lab File ID: TG11055A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 15.2
Calib. Ref.: TG11045A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	109	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

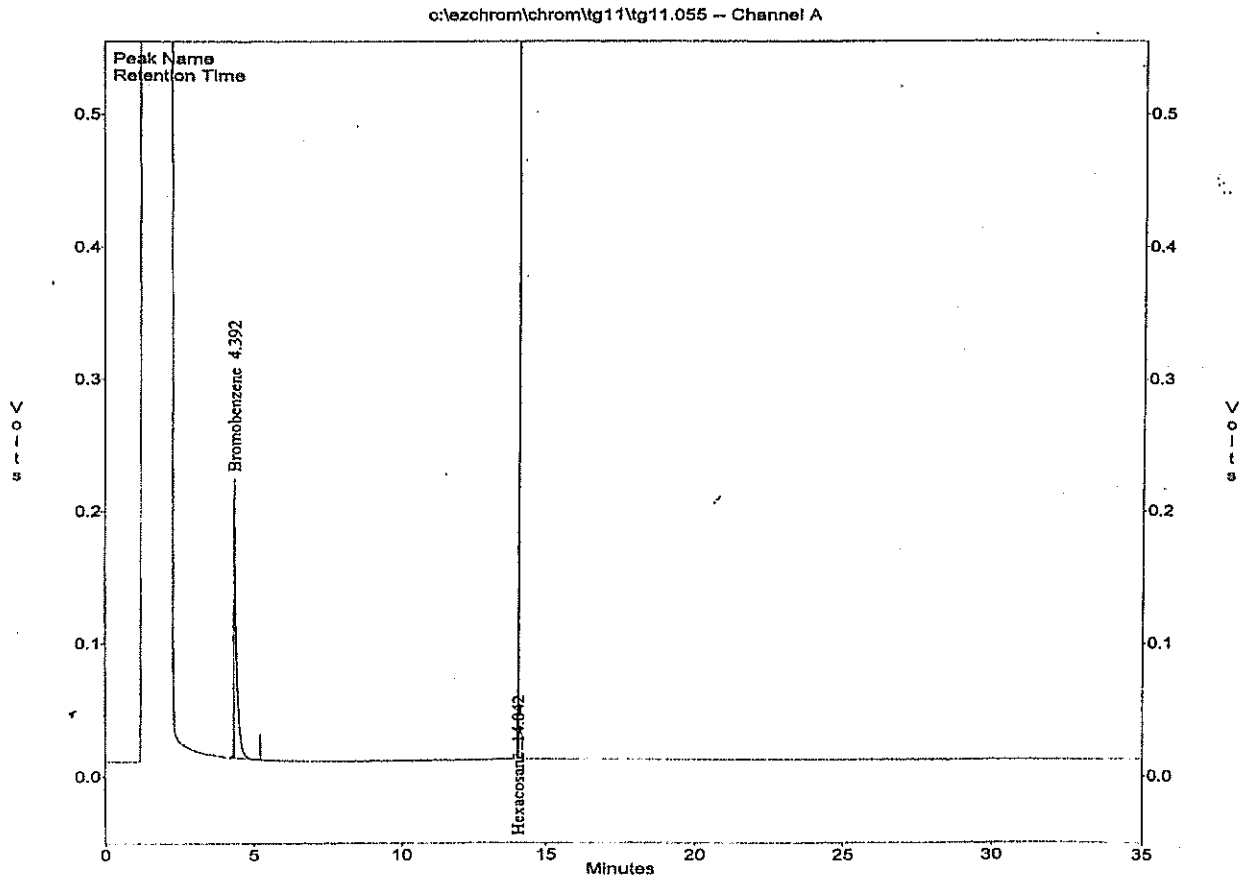
		Spike	QC Limit	QC Limit
SURR : Hexacosane	Water	0.25 mg/L	63-165%	65-135%
	Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.055
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-04
Acquired : Jul 13, 2005 00:41:13
Printed : Jul 13, 2005 09:49:09
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1141791	16597.4	68.8
2	Hexacosane	14.042	861978	31504.4	27.4
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



50064

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID	: 0003-012	Date Analyzed:	07/13/05 01:23
Lab Samp ID	: G055-05	Dilution Factor:	1
Lab File ID	: TG11056A	Matrix	: SOIL
Ext Btch ID	: DSG008S	% Moisture	: 12.8
Calib. Ref.	: TG11045A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	107	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

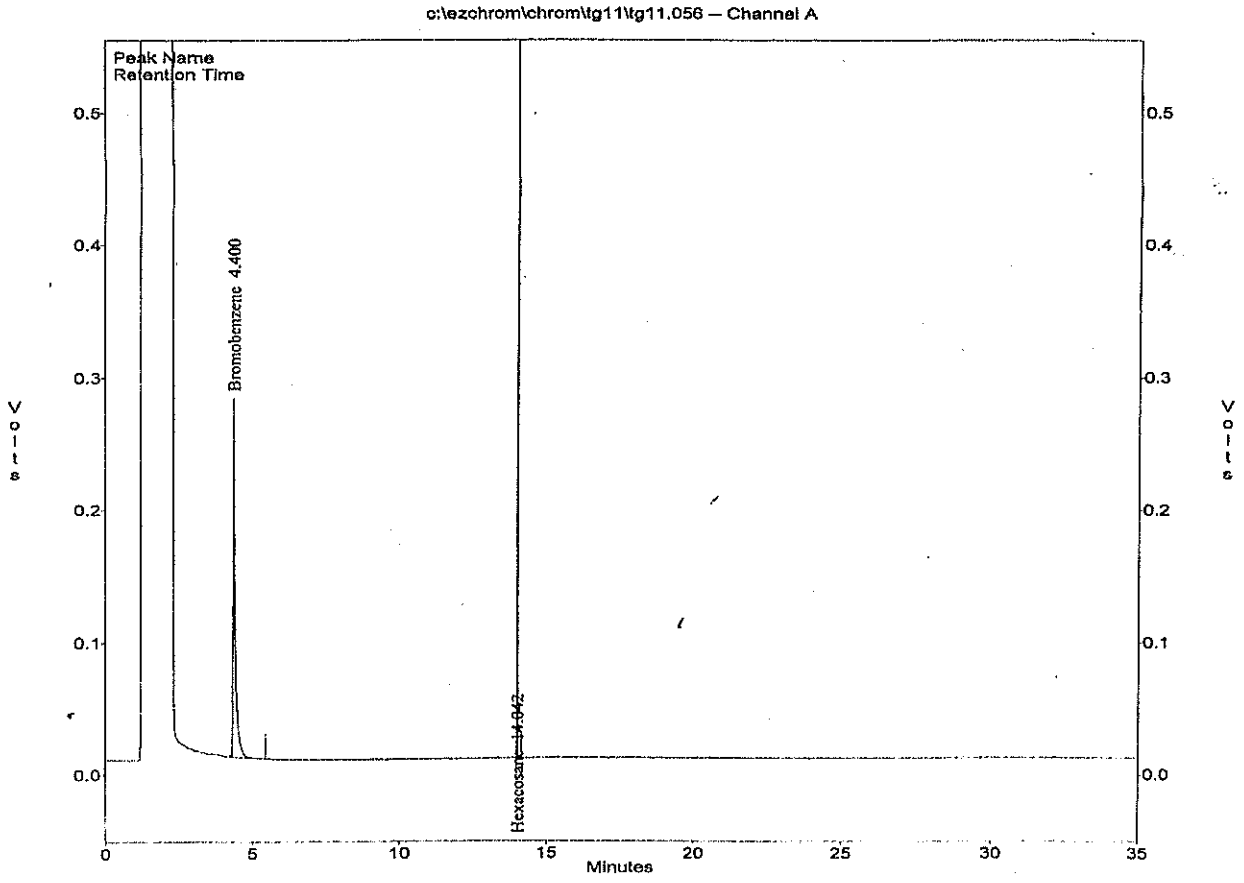
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.056
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-05
Acquired : Jul 13, 2005 01:23:07
Printed : Jul 13, 2005 09:49:28
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1293592	16597.4	77.9
2	Hexacosane	14.042	844598	31504.4	26.8
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5007A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID:	0003-013	Date Analyzed:	07/13/05 02:05
Lab Samp ID:	G055-06	Dilution Factor:	1
Lab File ID:	TG11057A	Matrix	: SOIL
Ext Btch ID:	DSG008S	% Moisture	: 8.6
Calib. Ref.:	TG11045A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	103	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

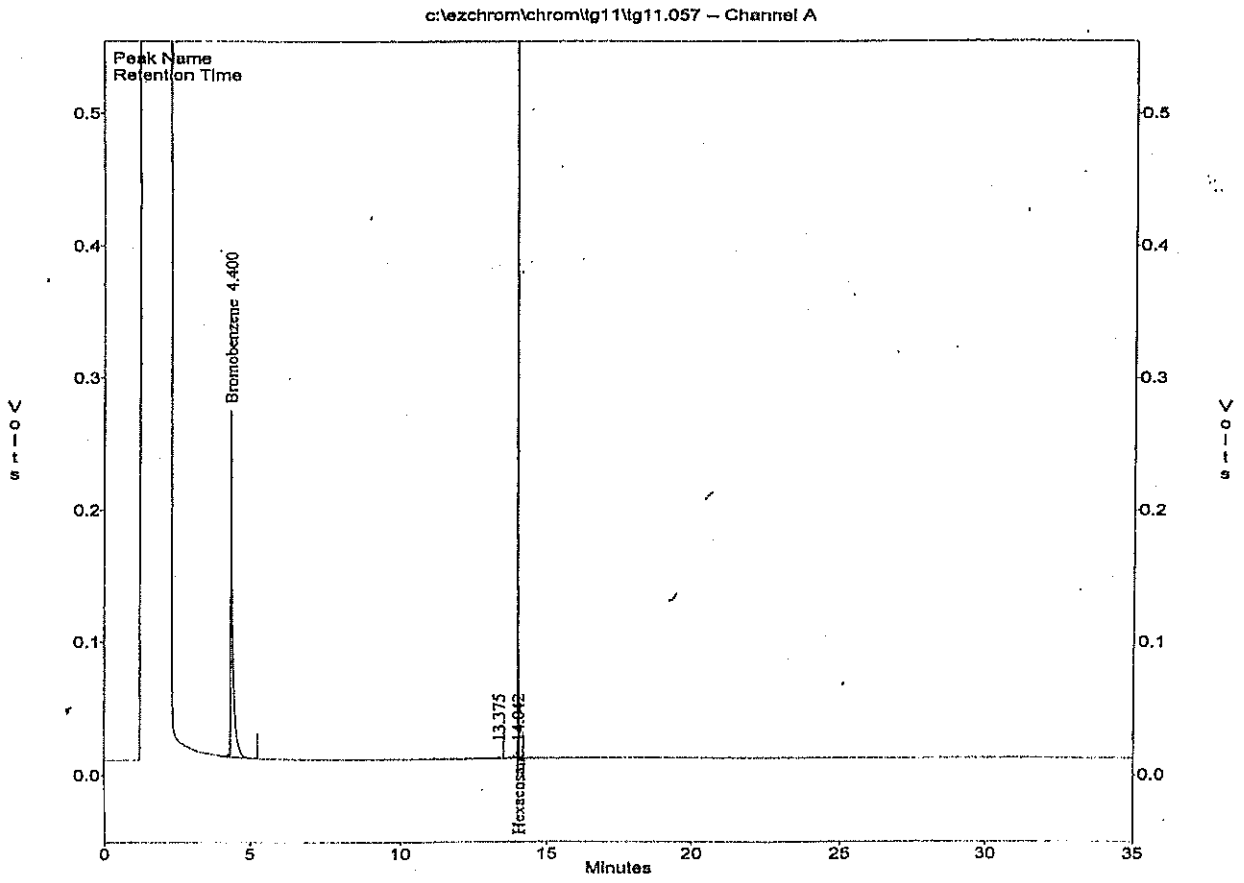
5008

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.057
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-06
Acquired : Jul 13, 2005 02:05:04
Printed : Jul 13, 2005 09:50:02
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1247123	16597.4	75.1
3	Hexacosane	14.042	813958	31504.4	25.8
G1	Diesel(TOTAL)		1531	25205.2	0.1
G2	Diesel(C10-C24)		1531	25139.0	0.1
G3	Diesel(C10-C28)		1531	25150.4	0.1



5008A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-014	Date Analyzed: 07/13/05 09:45
Lab Samp ID: G055-07T	Dilution Factor: 20
Lab File ID: TG11068A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 10.2
Calib. Ref.: TG11058A	Instrument ID : GCTO50

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	23000	220	110

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	DO	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

DO : Diluted Out

5009

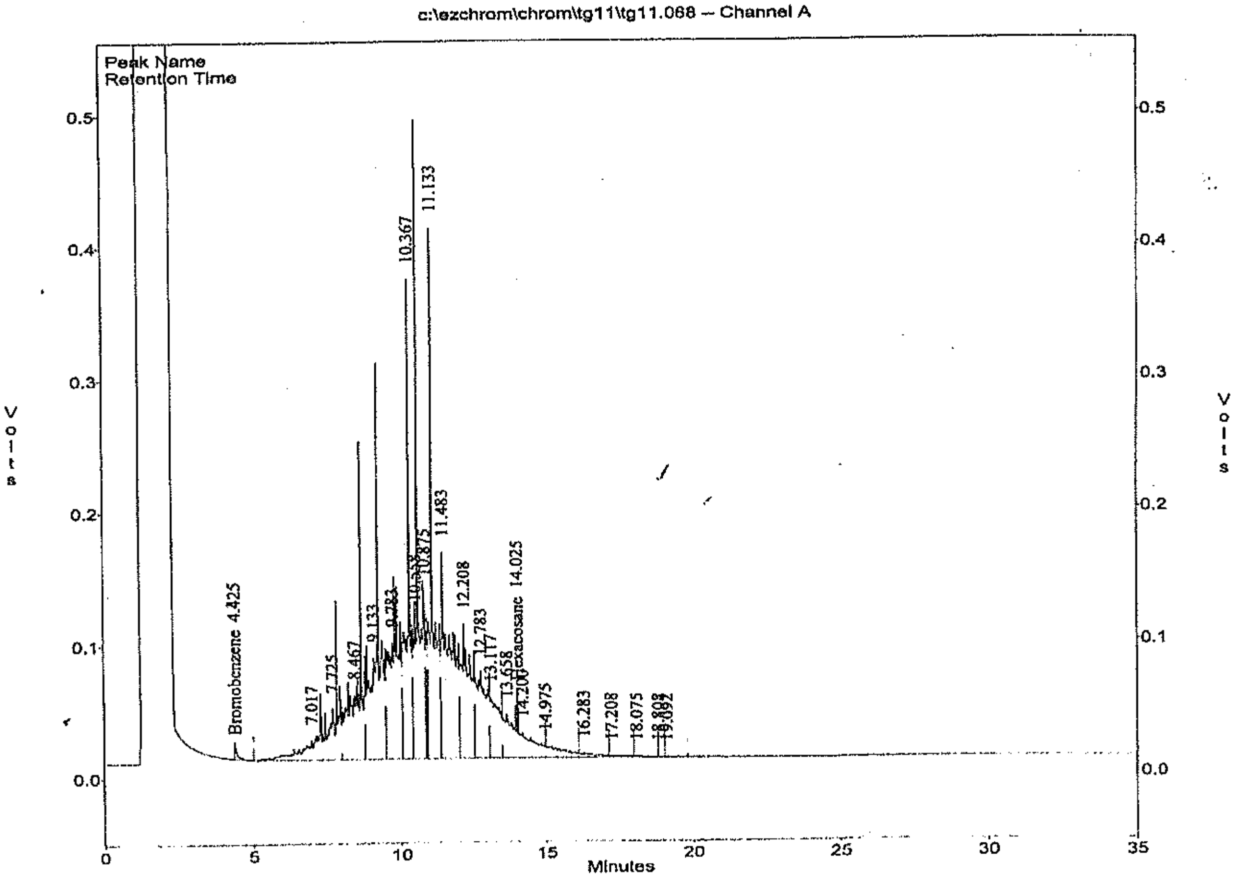
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.068
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-07T .05/1ML
Acquired : Jul 13, 2005 09:45:59
Printed : Jul 13, 2005 12:00:18
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.425	73808	16597.4	4.4
16	Hexacosane	14.025	184636	31504.4	5.9
G1	Diesel(TOTAL)		27468124	25205.2	1089.8
G2	Diesel(C10-C24)		26202130	25139.0	1042.3
G3	Diesel(C10-C28)		27272912	25150.4	1084.4

c:\ezchrom\chrom\tg11\tg11.068 -- Channel A



gp 5009A
07/13/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-015	Date Analyzed: 07/13/05 04:10
Lab Samp ID: G055-08	Dilution Factor: 1
Lab File ID: TG11060A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 6.2
Calib. Ref.: TG11058A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	107	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

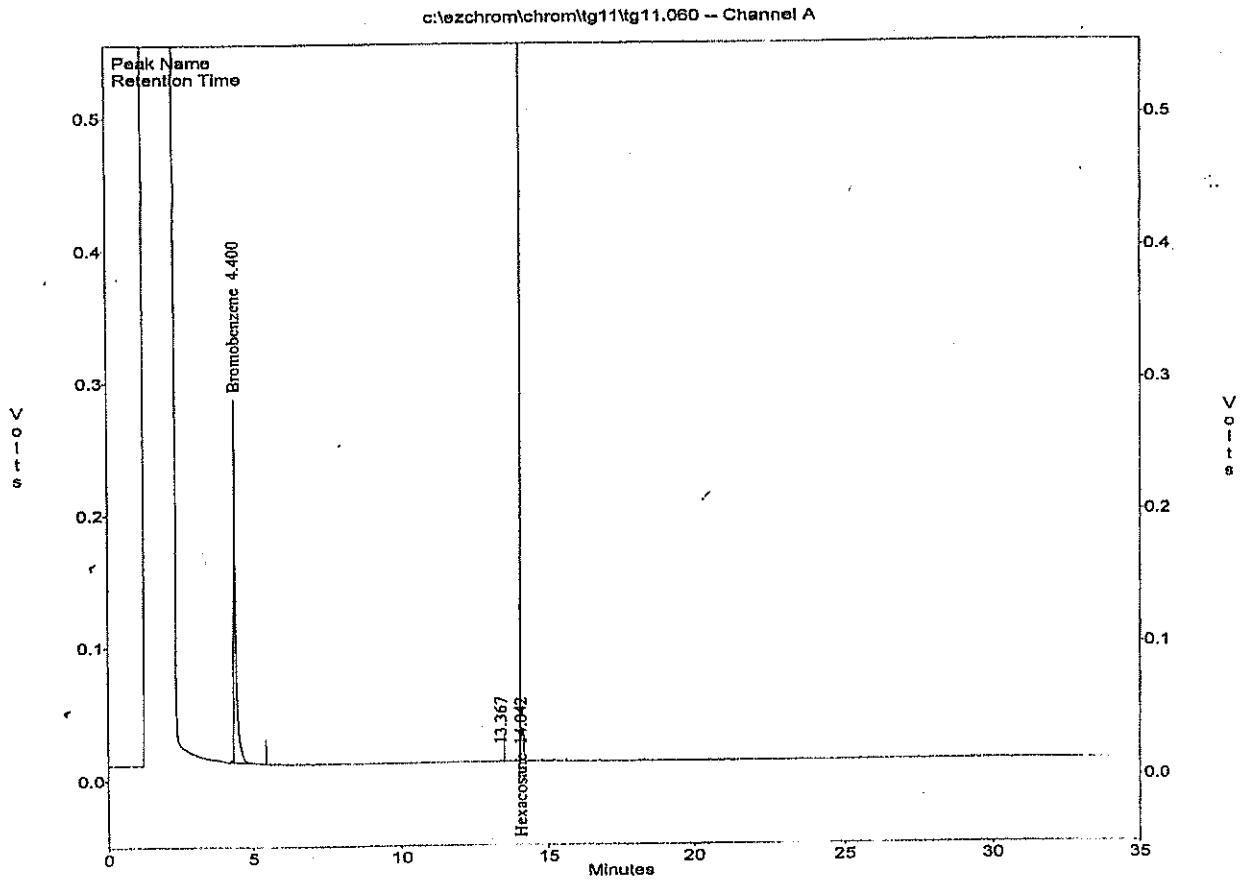
5010

.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.060
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-08
Acquired : Jul 13, 2005 04:10:49
Printed : Jul 13, 2005 09:51:04
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1321335	16597.4	79.6
3	Hexacosane	14.042	841109	31504.4	26.7
G1	Diesel(TOTAL)		1982	25205.2	0.1
G2	Diesel(C10-C24)		1982	25139.0	0.1
G3	Diesel(C10-C28)		1982	25150.4	0.1



5010A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-016	Date Analyzed: 07/13/05 06:16
Lab Samp ID: G055-09	Dilution Factor: 1
Lab File ID: TG11063A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 11.7
Calib. Ref.: TG11058A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	105	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

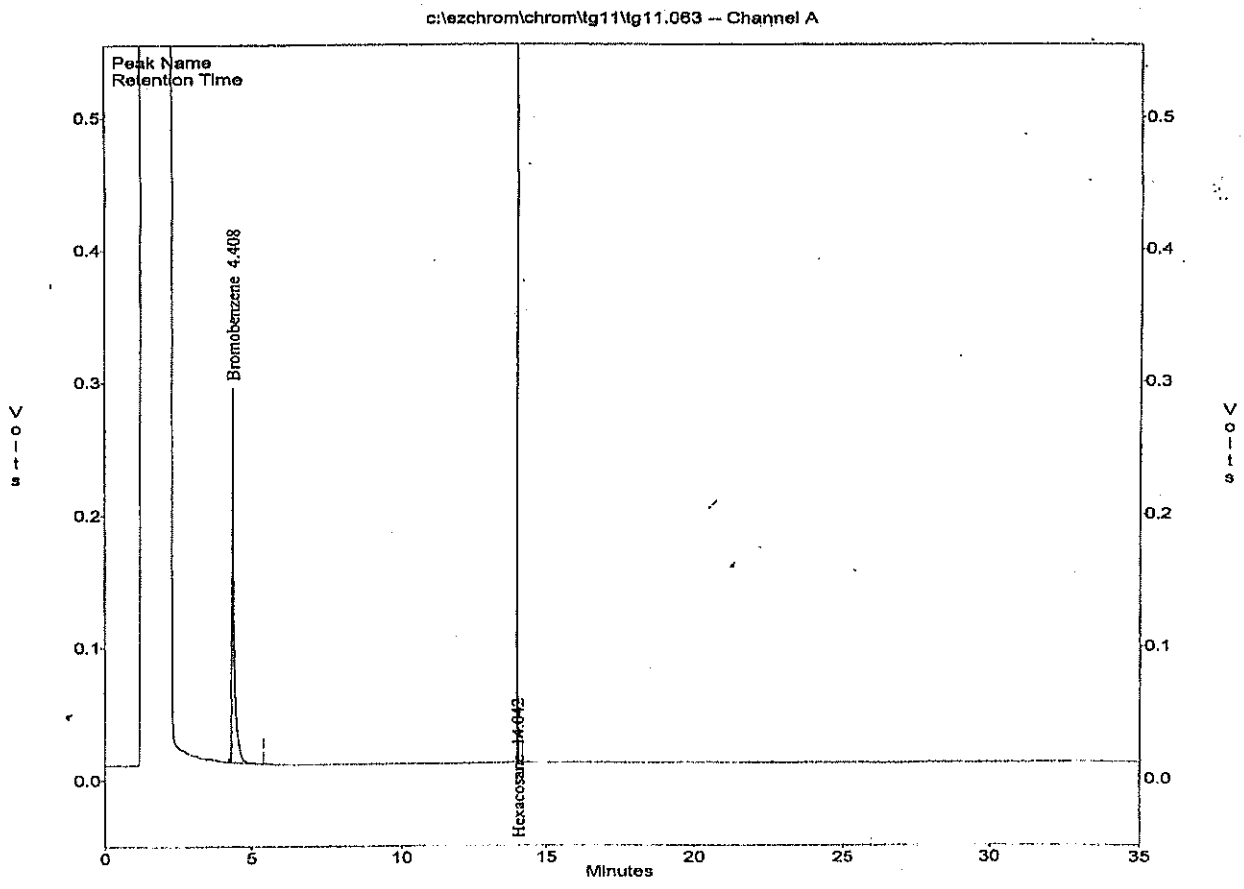
		Spike	QC Limit	QC Limit
SURR : Hexacosane	Water	0.25 mg/L	63-165%	65-135%
	Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.063
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-09
Acquired : Jul 13, 2005 06:16:28
Printed : Jul 13, 2005 09:52:33
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1361303	16597.4	82.0
2	Hexacosane	14.042	829295	31504.4	26.3
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5011 A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-017	Date Analyzed: 07/13/05 06:58
Lab Samp ID: G055-10	Dilution Factor: 1
Lab File ID: TG11064A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 12.3
Calib. Ref.: TG11058A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	103	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

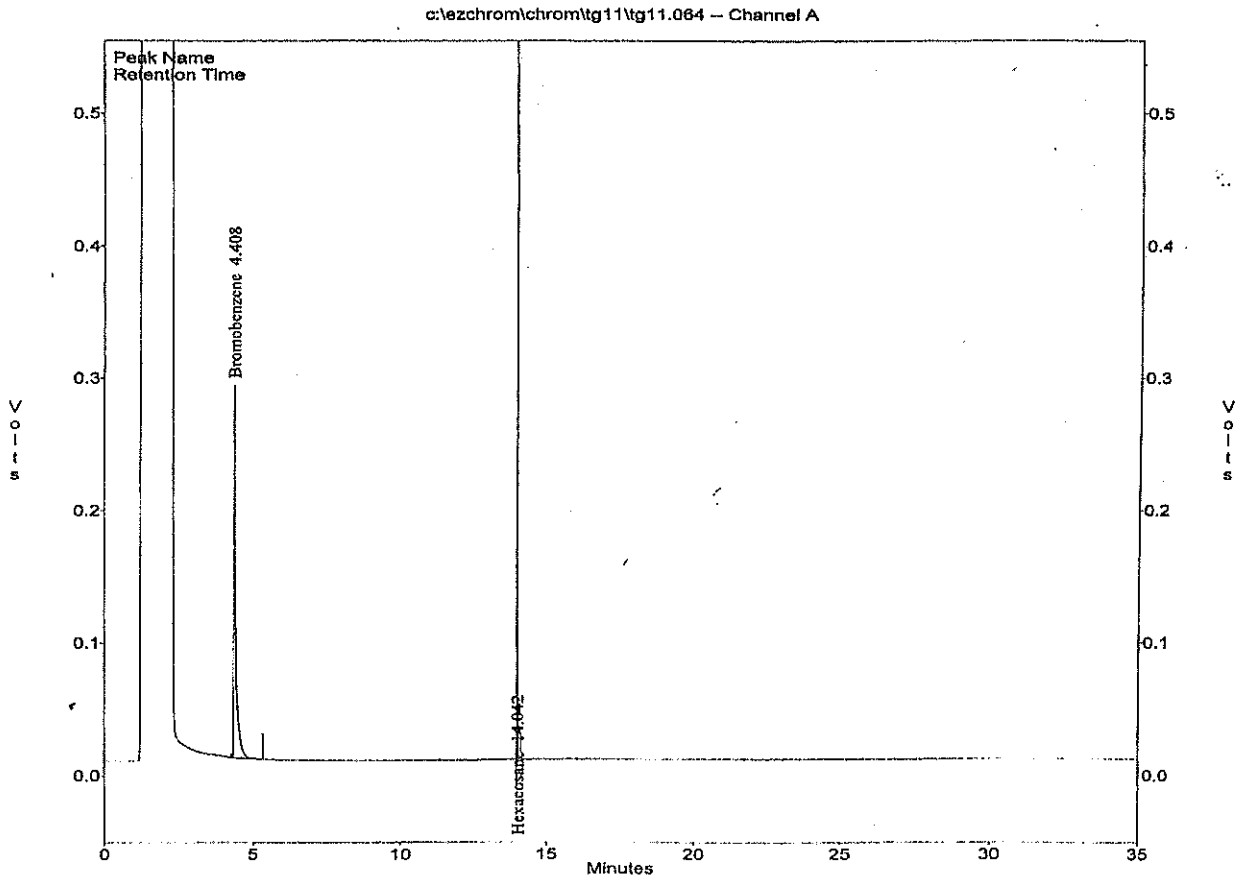
5012

.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.064
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-10
Acquired : Jul 13, 2005 06:58:19
Printed : Jul 13, 2005 09:52:48
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1278581	16597.4	77.0
2	Hexacosane	14.042	808690	31504.4	25.7
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5012A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID:	0003-018	Date Analyzed:	07/13/05 07:40
Lab Samp ID:	G055-11	Dilution Factor:	1
Lab File ID:	TG11065A	Matrix	: SOIL
Ext Btch ID:	DSG008S	% Moisture	: 12.3
Calib. Ref.:	TG11058A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	103	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

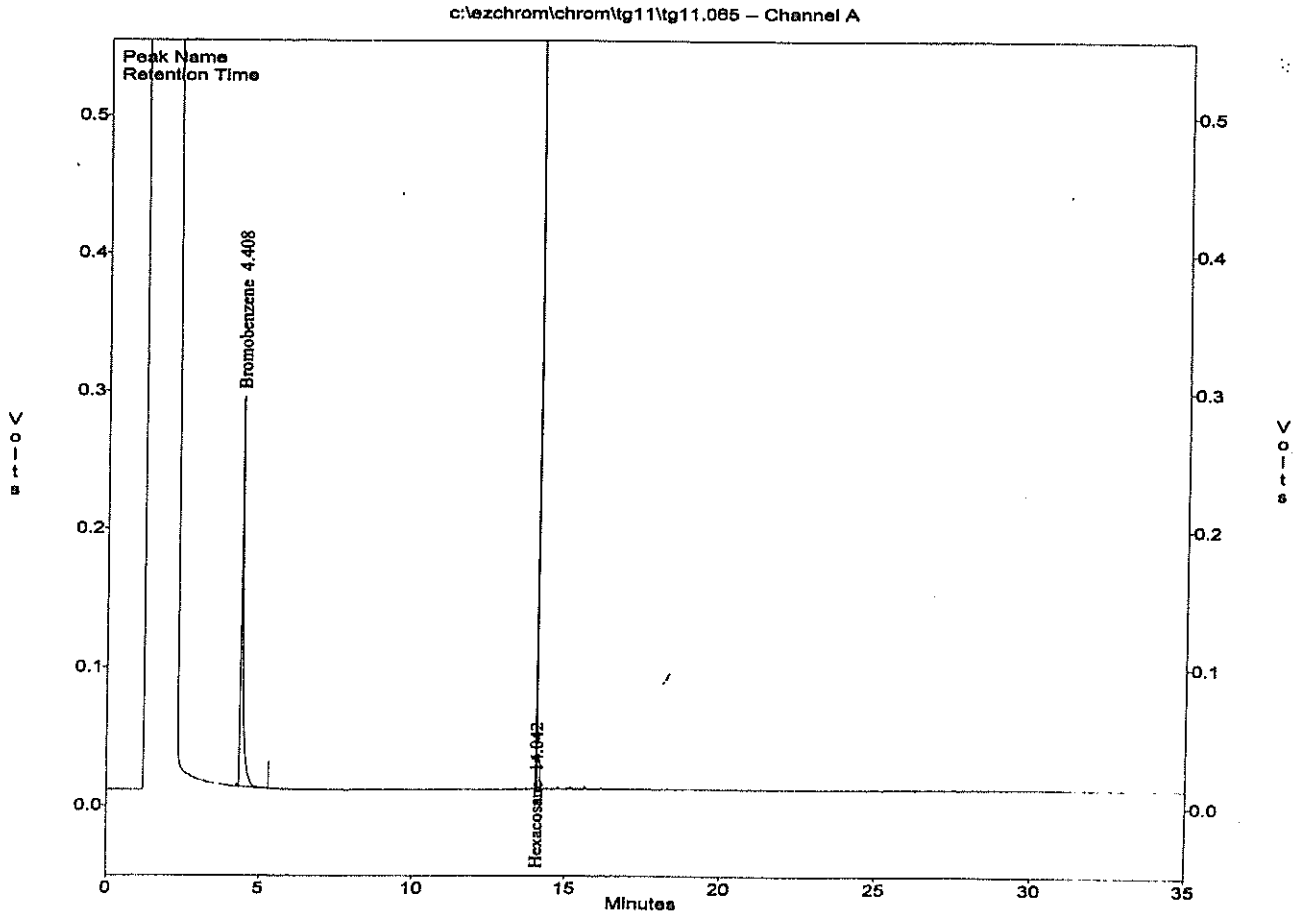
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.065
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-11
Acquired : Jul 13, 2005 07:40:12
Printed : Jul 13, 2005 09:53:40
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1304219	16597.4	78.6
2	Hexacosane	14.042	807450	31504.4	25.6
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5014

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-019	Date Analyzed: 07/13/05 08:22
Lab Samp ID: G055-12	Dilution Factor: 1
Lab File ID: TG11066A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : 8.0
Calib. Ref.: TG11058A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

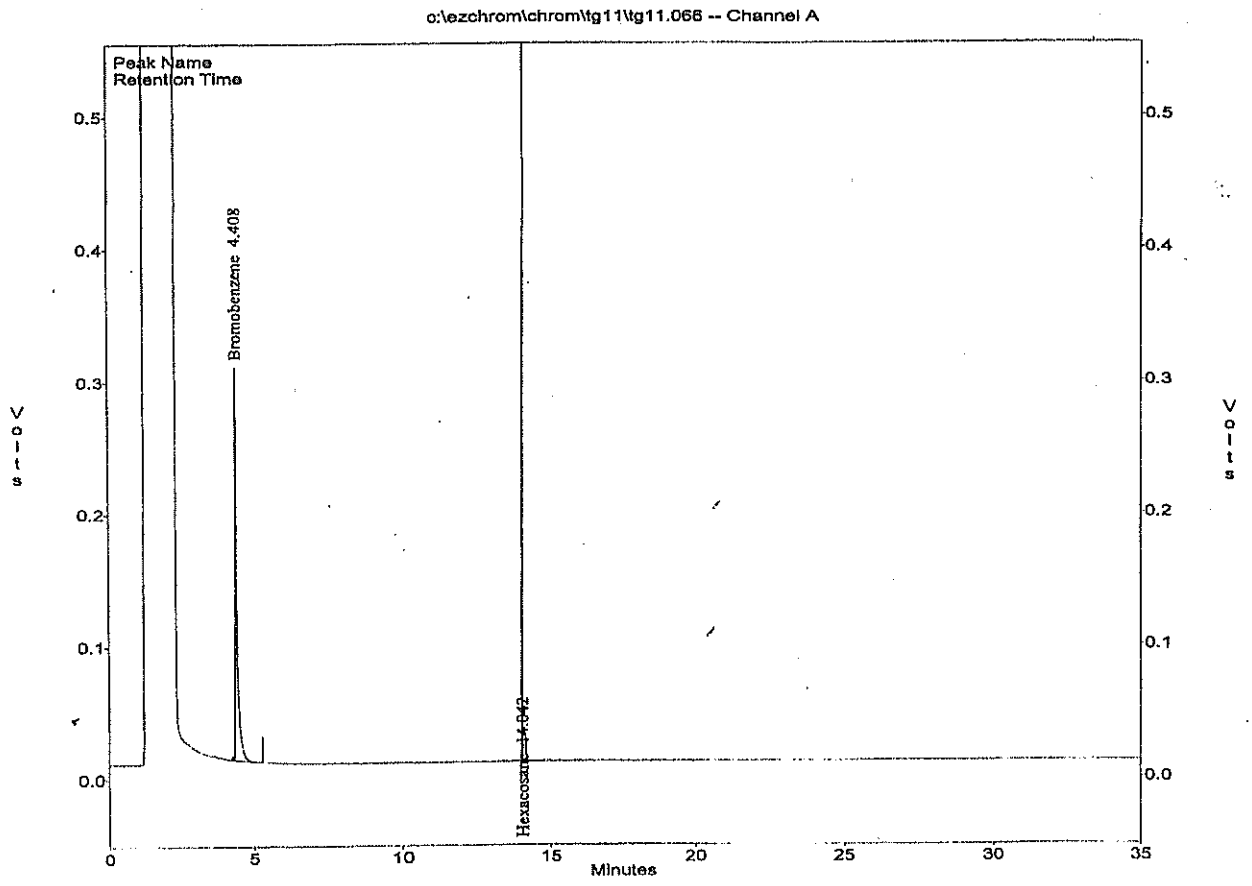
5015

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.066
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-12
Acquired : Jul 13, 2005 08:22:05
Printed : Jul 13, 2005 09:53:55
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1349016	16597.4	81.3
2	Hexacosane	14.042	800973	31504.4	25.4
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5015A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-020	Date Analyzed: 07/13/05 22:24
Lab Samp ID: G055-13	Dilution Factor: 1
Lab File ID: TG11086A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 3.7
Calib. Ref.: TG11082A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	11	10	5.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5016

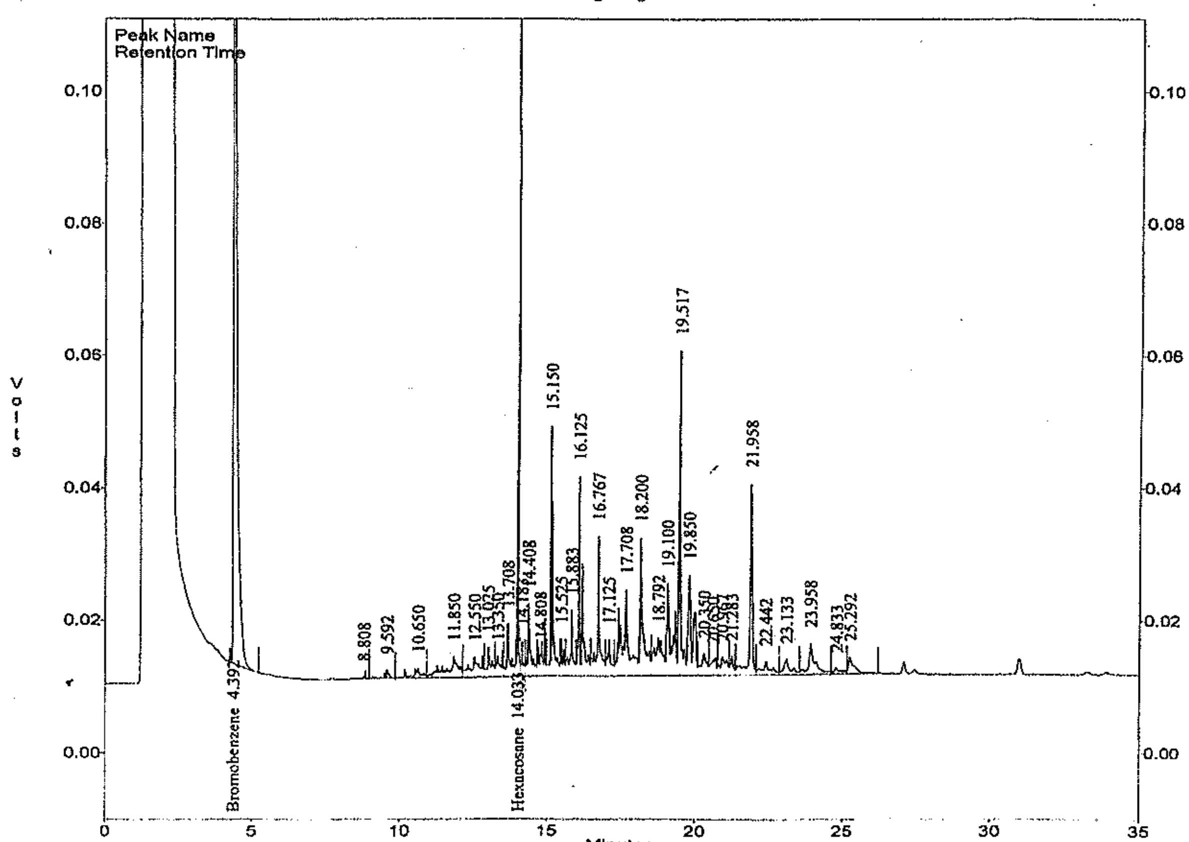
.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.086
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-13
Acquired : Jul 13, 2005 22:24:49
Printed : Jul 14, 2005 09:11:36
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1378311	16597.4	83.0
10	Hexacosane	14.033	802562	31504.4	25.5
G1	Diesel(TOTAL)		2502882	25205.2	99.3
G2	Diesel(C10-C24)		259173	25139.0	10.3
G3	Diesel(C10-C28)		447177	25150.4	17.8

c:\ezchrom\chrom\tg11\tg11.086 -- Channel A



5016A ASX 7/14/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-021	Date Analyzed: 07/13/05 23:06
Lab Samp ID: G055-14	Dilution Factor: 1
Lab File ID: TG11087A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 2.1
Calib. Ref.: TG11082A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	10	10	5.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	106	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

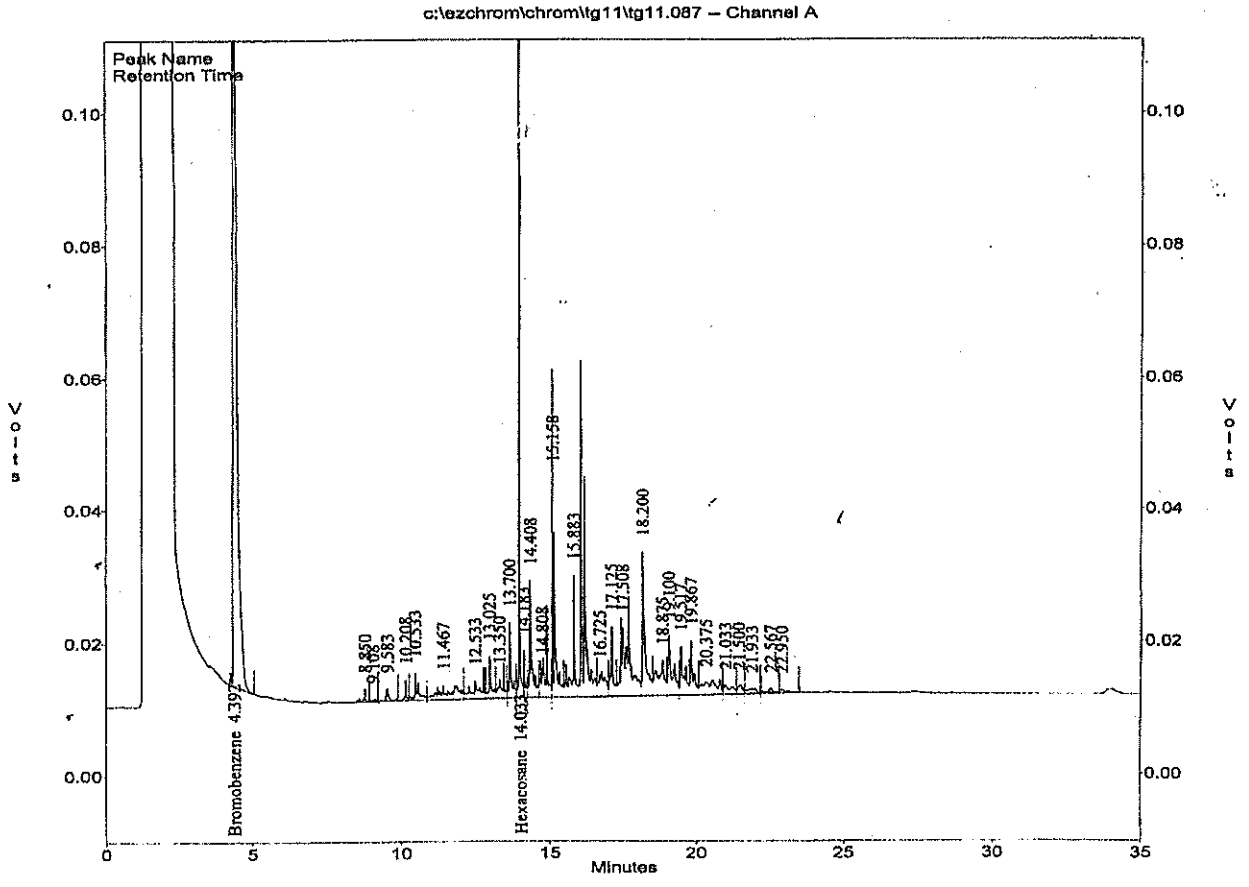
5017

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.087
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-14
Acquired : Jul 13, 2005 23:06:57
Printed : Jul 14, 2005 09:36:30
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1416488	16597.4	85.3
12	Hexacosane	14.033	832677	31504.4	26.4
G1	Diesel(TOTAL)		1956327	25205.2	77.6
G2	Diesel(C10-C24)		254588	25139.0	10.1
G3	Diesel(C10-C28)		473844	25150.4	18.8



5017A AS 7/14/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-022	Date Analyzed: 07/13/05 23:48
Lab Samp ID: G055-15	Dilution Factor: 1
Lab File ID: TG11088A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 2.5
Calib. Ref.: TG11082A	Instrument ID : GCTO50

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	109	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

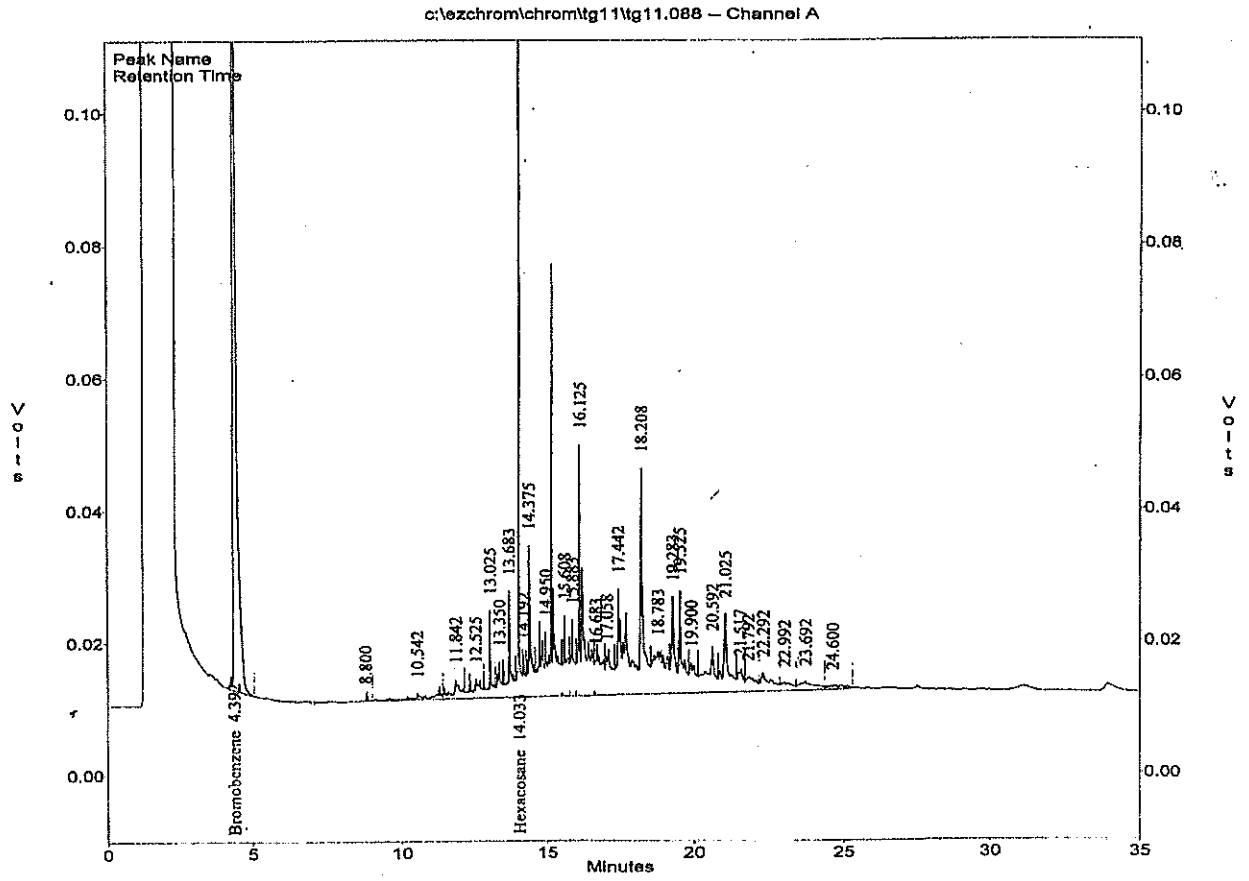
5018

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.088
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-15
Acquired : Jul 13, 2005 23:48:59
Printed : Jul 14, 2005 09:37:49
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1336173	16597.4	80.5
9	Hexacosane	14.033	861038	31504.4	27.3
G1	Diesel(TOTAL)		3098859	25205.2	122.9
G2	Diesel(C10-C24)		247385	25139.0	9.8
G3	Diesel(C10-C28)		879959	25150.4	35.0



5018A 7/14/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-023	Date Analyzed: 07/13/05 13:57
Lab Samp ID: G055-16	Dilution Factor: 1
Lab File ID: TG11074A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 11.0
Calib. Ref.: TG11070A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	96	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

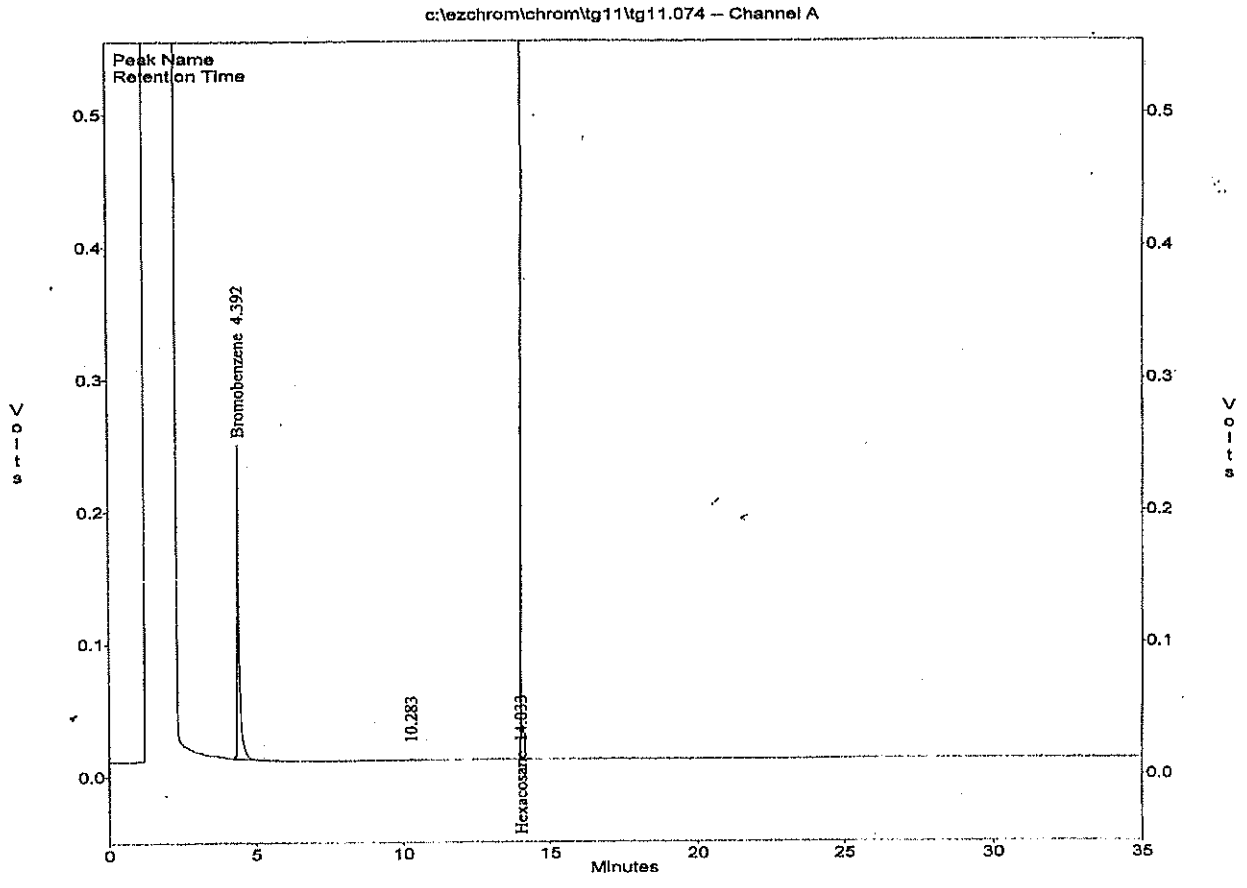
5019

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.074
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-16
Acquired : Jul 13, 2005 13:57:47
Printed : Jul 14, 2005 09:02:06
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1035256	16597.4	62.4
3	Hexacosane	14.033	754720	31504.4	24.0
G1	Diesel(TOTAL)		10974	25205.2	0.4
G2	Diesel(C10-C24)		10974	25139.0	0.4
G3	Diesel(C10-C28)		10974	25150.4	0.4



5019A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID	: 0003-024	Date Analyzed:	07/13/05 14:39
Lab Samp ID	: G055-17	Dilution Factor:	1
Lab File ID	: TG11075A	Matrix	: SOIL
Ext Btch ID	: DSG009S	% Moisture	: 7.9
Calib. Ref.	: TG11070A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	92	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

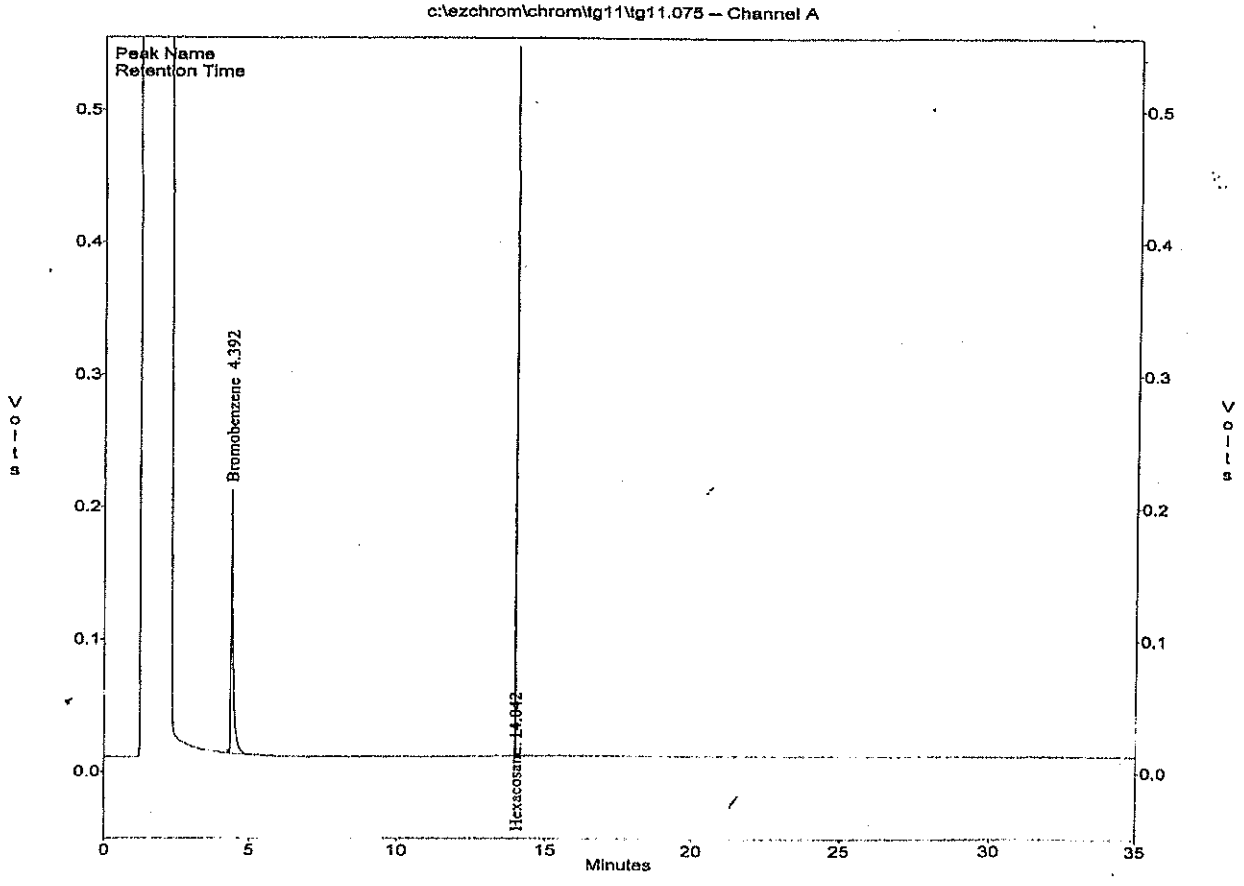
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.075
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-17
Acquired : Jul 13, 2005 14:39:47
Printed : Jul 14, 2005 09:02:31
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	999166	16597.4	60.2
2	Hexacosane	14.042	725862	31504.4	23.0
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5020A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID:	0003-025	Date Analyzed:	07/13/05 15:21
Lab Samp ID:	G055-18	Dilution Factor:	1
Lab File ID:	TG11076A	Matrix	: SOIL
Ext Btch ID:	DSG009S	% Moisture	: 15.4
Calib. Ref.:	TG11070A	Instrument ID	: GCTO50

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

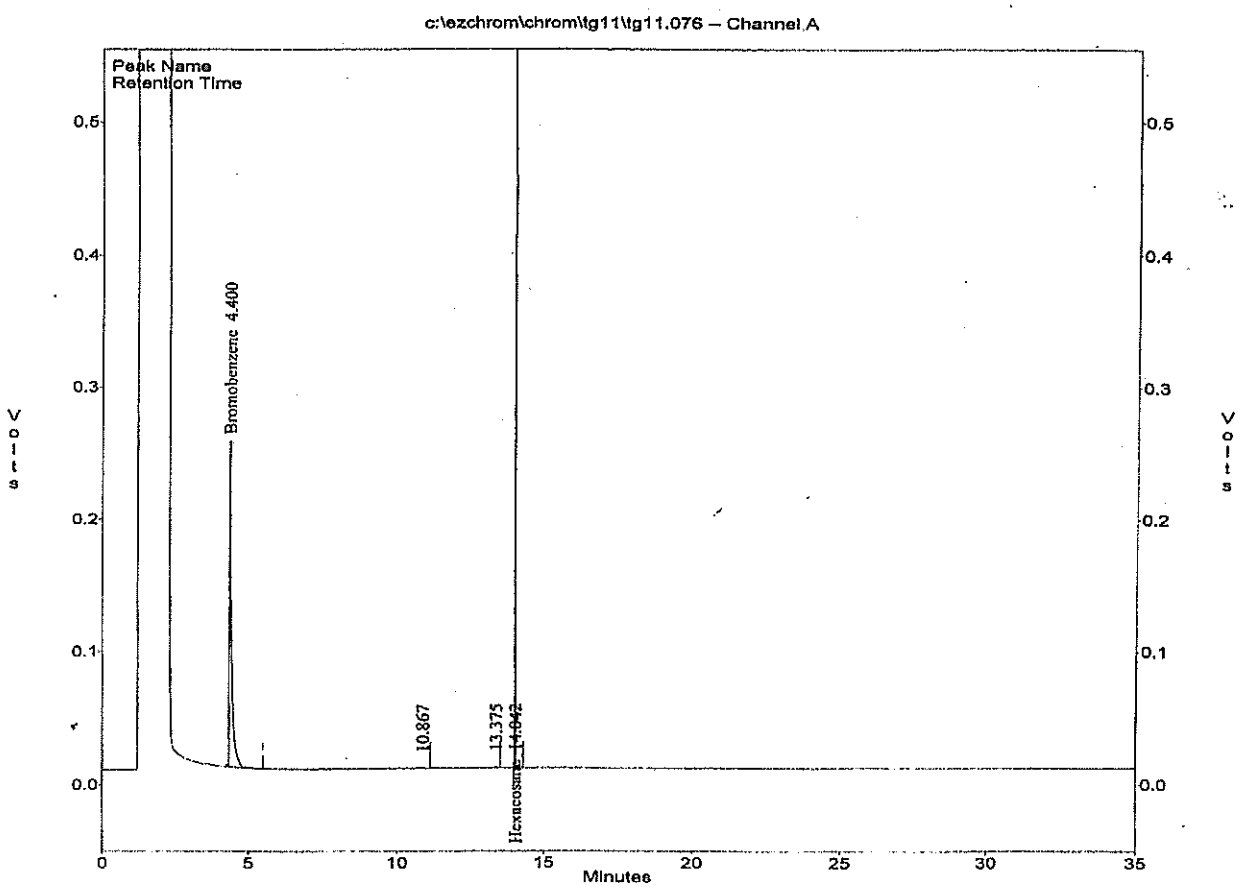
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.076
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-18
Acquired : Jul 13, 2005 15:21:47
Printed : Jul 14, 2005 09:02:52
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1238046	16597.4	74.6
4	Hexacosane	14.042	803727	31504.4	25.5
G1	Diesel(TOTAL)		8127	25205.2	0.3
G2	Diesel(C10-C24)		8127	25139.0	0.3
G3	Diesel(C10-C28)		8127	25150.4	0.3



5021A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-026	Date Analyzed: 07/13/05 16:04
Lab Samp ID: G055-19	Dilution Factor: 1
Lab File ID: TG11077A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 13.5
Calib. Ref.: TG11070A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	100	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

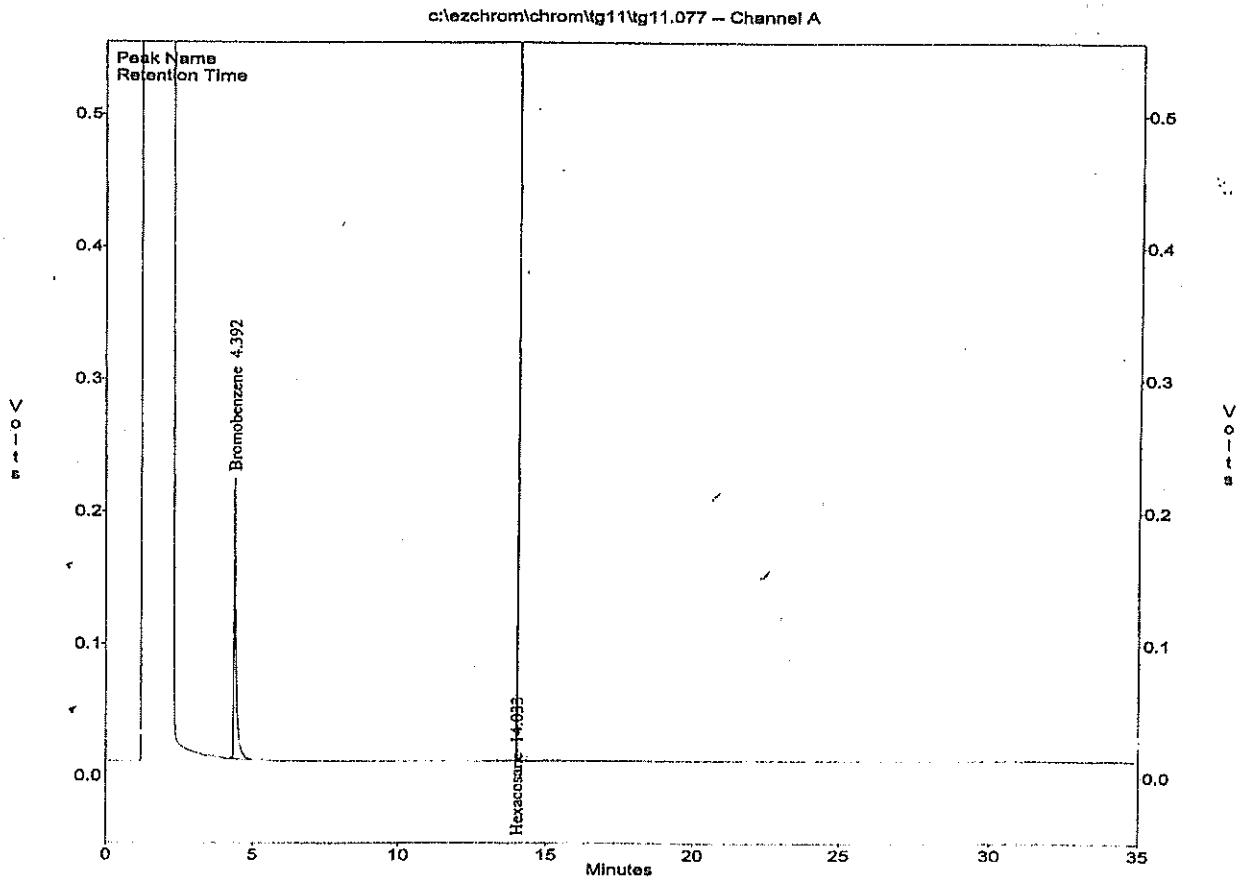
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.077
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-19
Acquired : Jul 13, 2005 16:04:00
Printed : Jul 14, 2005 09:03:12
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1074366	16597.4	64.7
2	Hexacosane	14.033	788464	31504.4	25.0
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5022A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-027	Date Analyzed: 07/13/05 16:46
Lab Samp ID: G055-20	Dilution Factor: 1
Lab File ID: TG11078A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 10.5
Calib. Ref.: TG11070A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	13	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	104	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

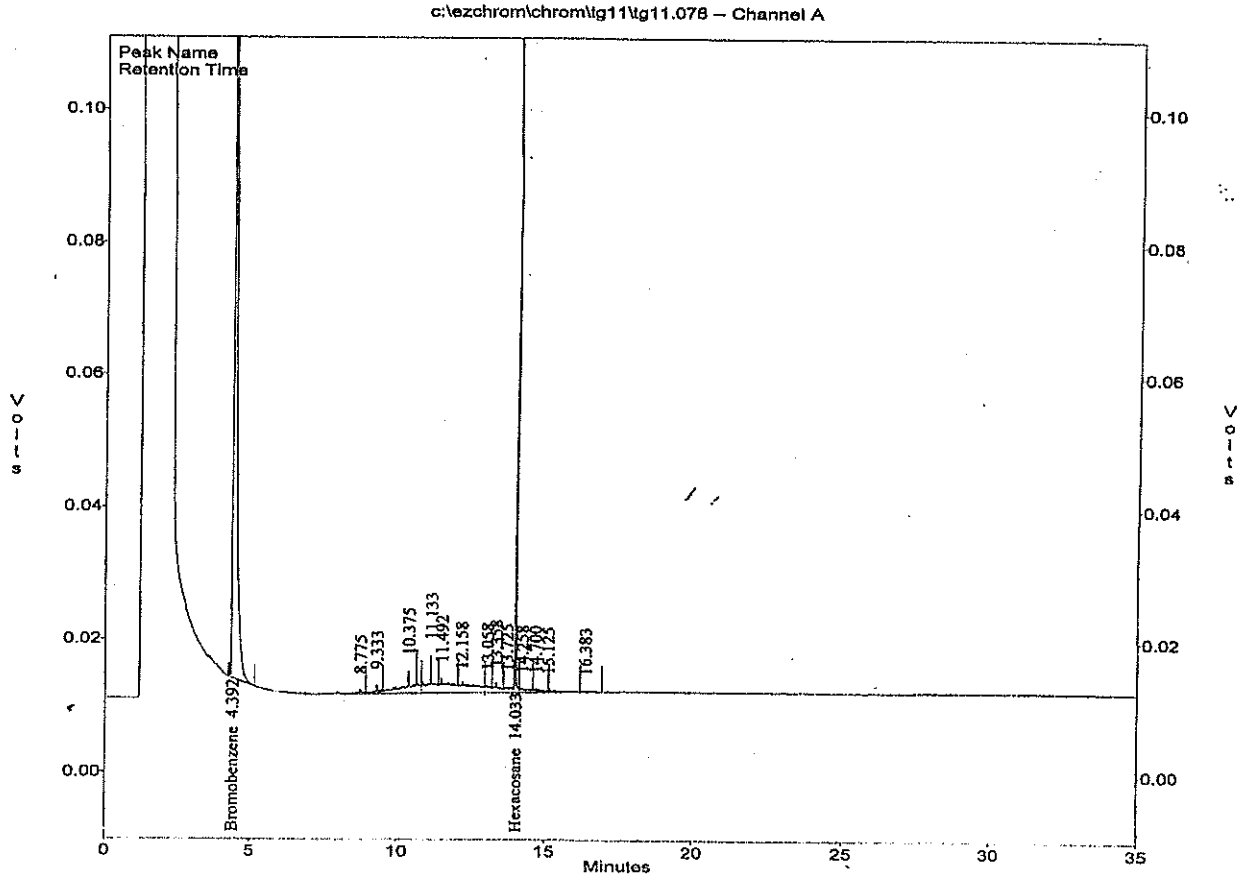
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.078
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-20
Acquired : Jul 13, 2005 16:46:14
Printed : Jul 14, 2005 09:04:12
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1128938	16597.4	68.0
11	Hexacosane	14.033	816609	31504.4	25.9
G1	Diesel(TOTAL)		324718	25205.2	12.9
G2	Diesel(C10-C24)		285666	25139.0	11.4
G3	Diesel(C10-C28)		309851	25150.4	12.3



5023A AA 7/14/05

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-028	Date Analyzed: 07/13/05 17:28
Lab Samp ID: G055-21	Dilution Factor: 1
Lab File ID: TG11079A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 10.7
Calib. Ref.: TG11070A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	100	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

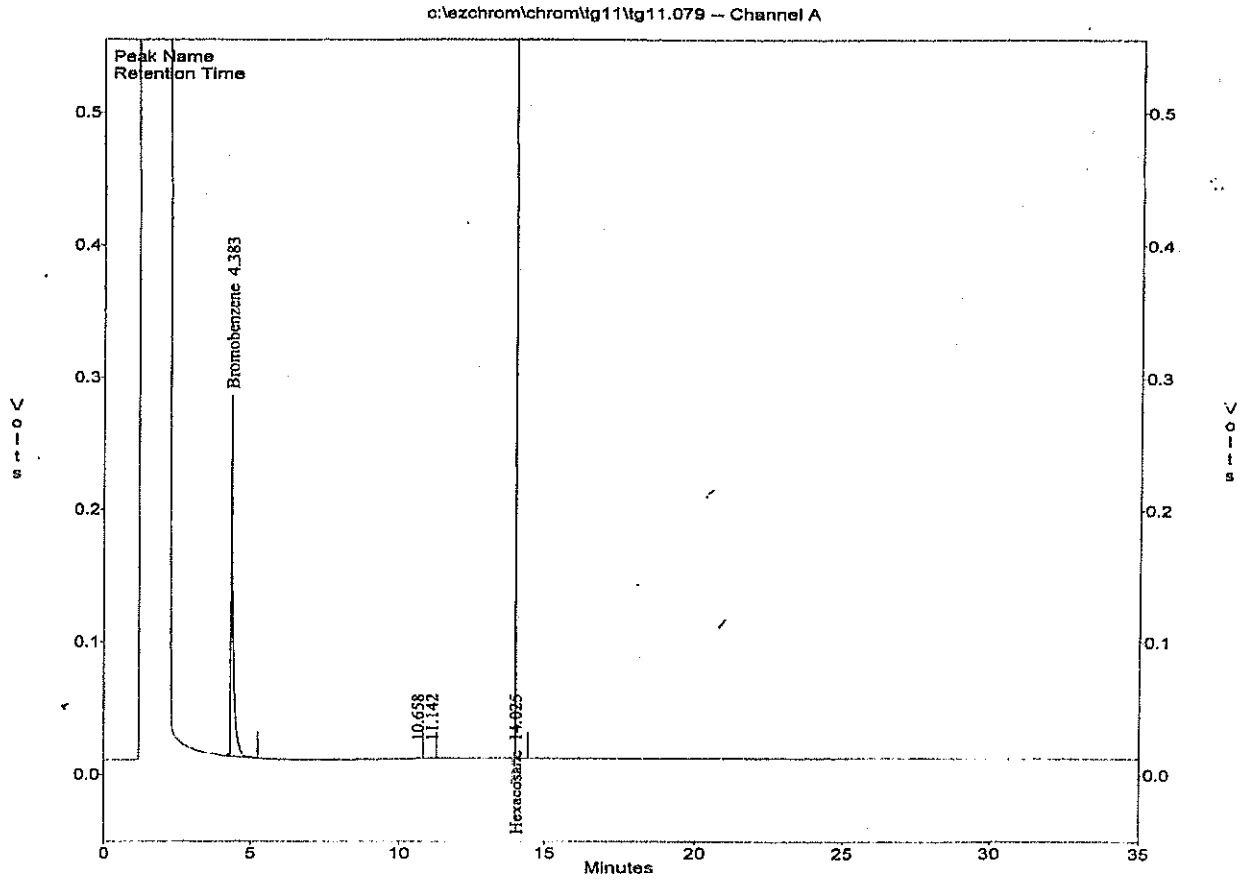
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

.. METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.079
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-21
Acquired : Jul 13, 2005 17:28:29
Printed : Jul 14, 2005 09:05:29
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.383	1275233	16597.4	76.8
4	Hexacosane	14.025	789979	31504.4	25.1
G1	Diesel(TOTAL)		8078	25205.2	0.3
G2	Diesel(C10-C24)		8078	25139.0	0.3
G3	Diesel(C10-C28)		8078	25150.4	0.3



5024A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055	Date Extracted:	07/12/05 12:00
Sample ID:	0003-029	Date Analyzed:	07/13/05 20:18
Lab Samp ID:	G055-22	Dilution Factor:	1
Lab File ID:	TG11083A	Matrix :	SOIL
Ext Btch ID:	DSG009S	% Moisture :	7.2
Calib. Ref.:	TG11082A	Instrument ID :	GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	97	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

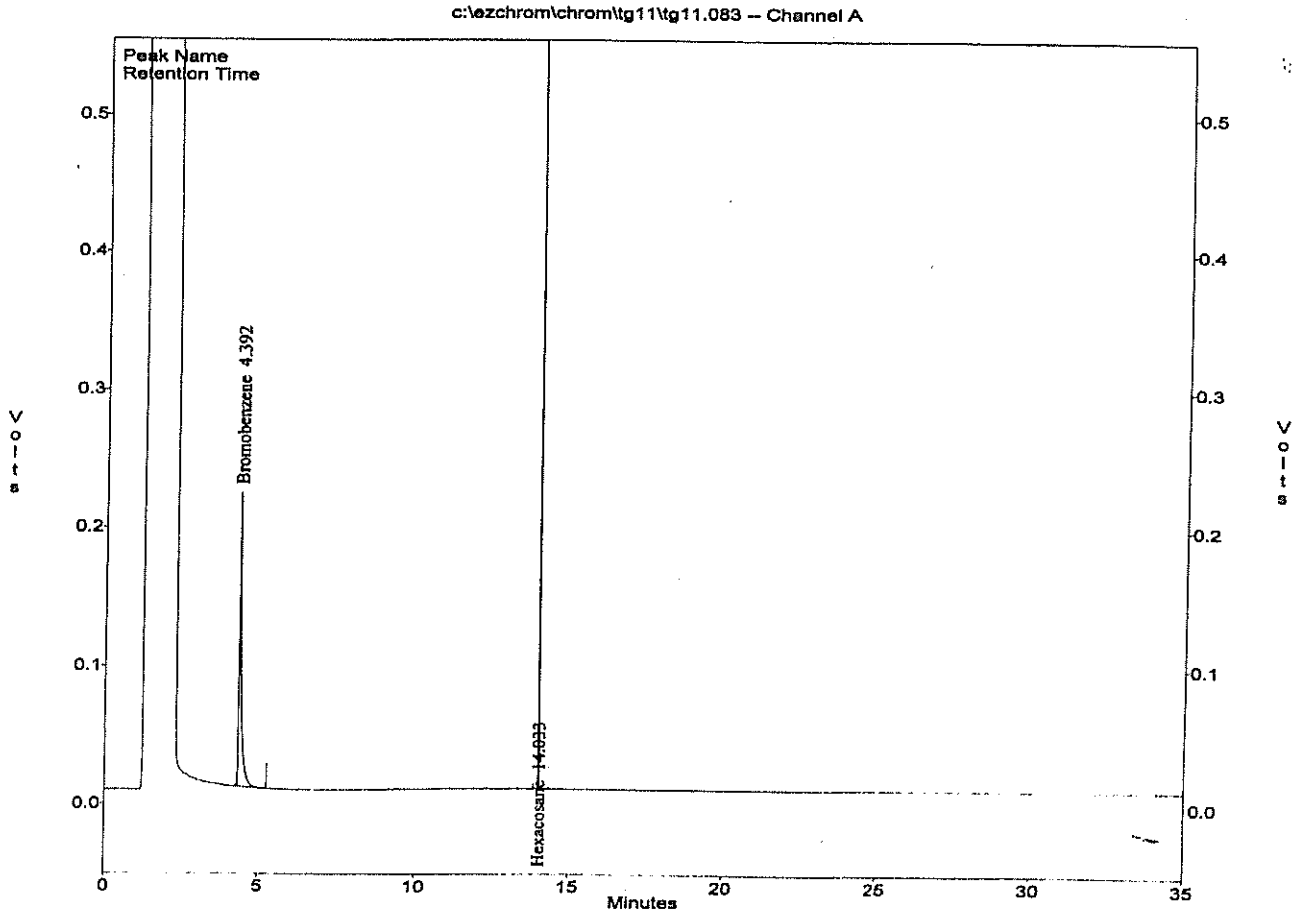
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.083
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-22
Acquired : Jul 13, 2005 20:18:10
Printed : Jul 14, 2005 09:07:15
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1090853	16597.4	65.7
2	Hexacosane	14.033	766769	31504.4	24.3
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5026

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-030	Date Analyzed: 07/13/05 18:11
Lab Samp ID: G055-23	Dilution Factor: 1
Lab File ID: TG1108OA	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 10.9
Calib. Ref.: TG1107OA	Instrument ID : GCTO5O

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	97	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

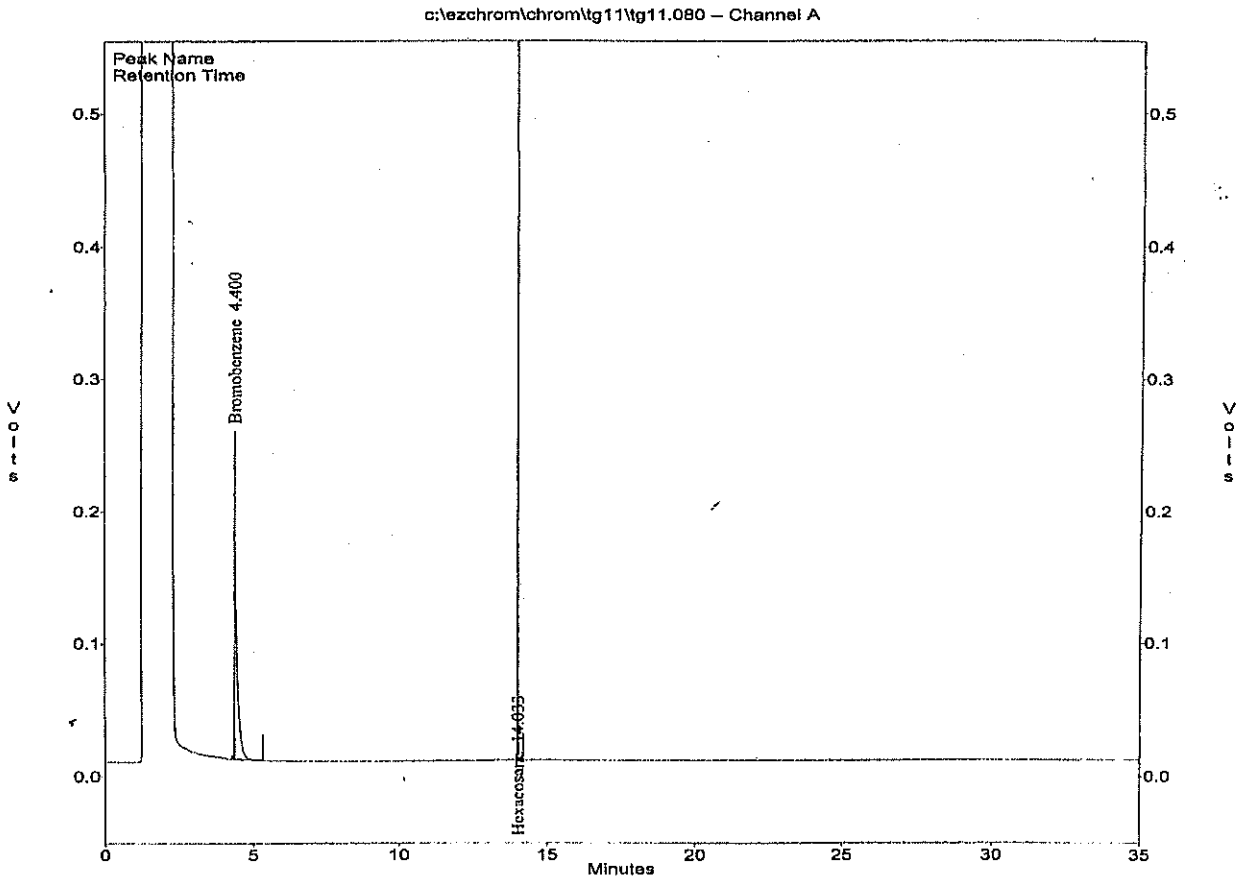
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.080
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-23
Acquired : Jul 13, 2005 18:11:09
Printed : Jul 14, 2005 09:05:58
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.400	1151054	16597.4	69.4
2	Hexacosane	14.033	764015	31504.4	24.3
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5027A

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: 0003-031	Date Analyzed: 07/13/05 18:53
Lab Samp ID: G055-24	Dilution Factor: 1
Lab File ID: TG11081A	Matrix : SOIL
Ext Btch ID: DSG009S	% Moisture : 9.7
Calib. Ref.: TG11070A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	103	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

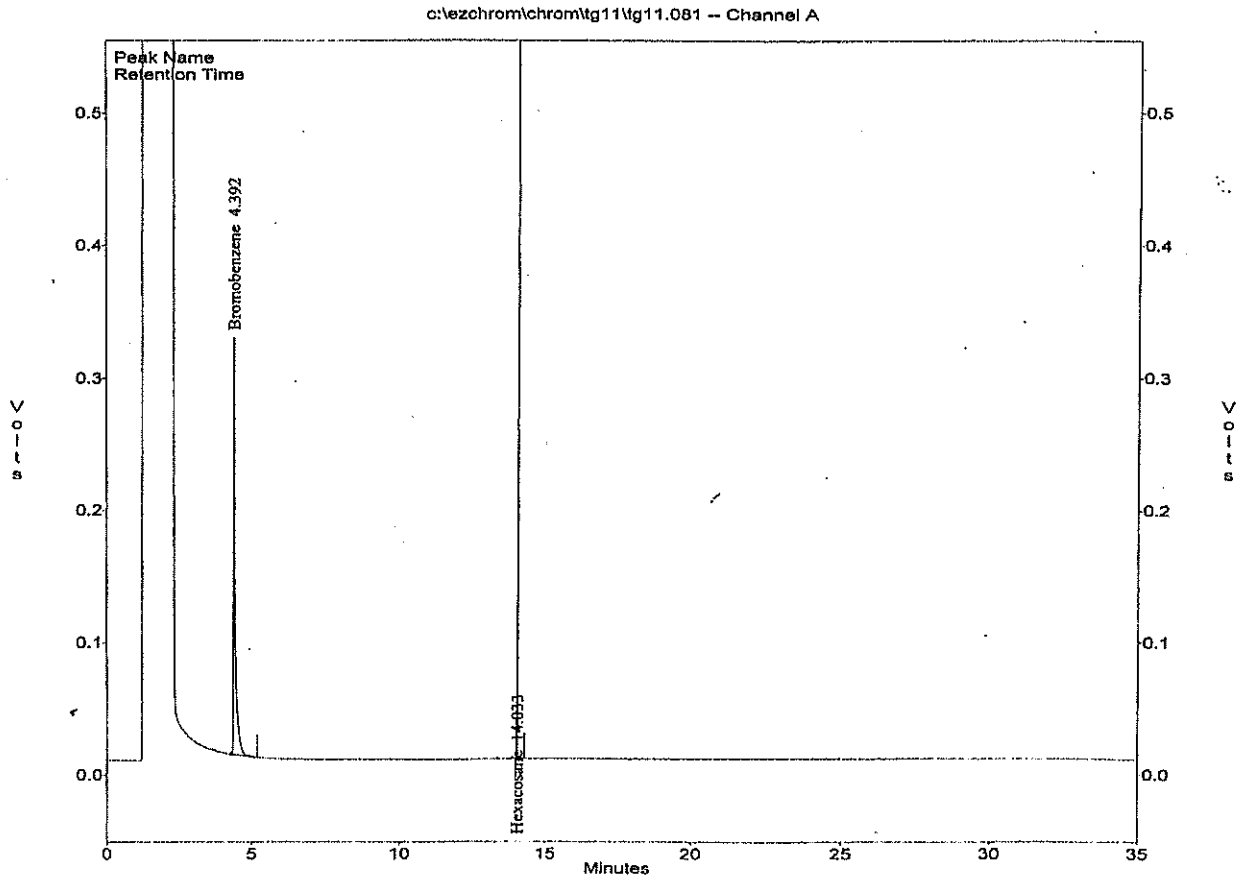
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.081
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G055-24
Acquired : Jul 13, 2005 18:53:27
Printed : Jul 14, 2005 09:06:24
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.392	1347660	16597.4	81.2
2	Hexacosane	14.033	811116	31504.4	25.7
G1	Diesel(TOTAL)		0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0



5028A

EMAX LABORATORIES, INC.

QC SUMMARIES

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METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G055	Date Extracted: 07/12/05 12:00
Sample ID: MBLK1S	Date Analyzed: 07/12/05 22:35
Lab Samp ID: DSG008SB	Dilution Factor: 1
Lab File ID: TG11052A	Matrix : SOIL
Ext Btch ID: DSG008S	% Moisture : NA
Calib. Ref.: TG11045A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	111	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR : Hexacosane		Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

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EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055
METHOD: METHOD 3550B/8015B

MATRIX:	SOIL		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MBLK1S			
LAB SAMP ID:	DSG008SB	DSG008SL		
LAB FILE ID:	TG11052A	TG11053A		
DATE EXTRACTED:	07/12/0512:00	07/12/0512:00	DATE COLLECTED:	NA
DATE ANALYZED:	07/12/0522:35	07/12/0523:17	DATE RECEIVED:	07/12/05
PREP. BATCH:	DSG008S	DSG008S		
CALIB. REF:	TG11045A	TG11045A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Diesel	ND	500	560	112	65-135

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Hexacosane	25	26.9	107	65-135

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 056055	Date Extracted:	07/12/05 12:00
Sample ID:	MBLK2S	Date Analyzed:	07/13/05 13:15
Lab Samp ID:	DSG009SB	Dilution Factor:	1
Lab File ID:	TG11073A	Matrix :	SOIL
Ext Btch ID:	DSG009S	% Moisture :	NA
Calib. Ref.:	TG11070A	Instrument ID :	GCT050

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	107	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055
METHOD: METHOD 3550B/8015B

MATRIX:	SOIL		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MBLK2S			
LAB SAMP ID:	DSG009SB	DSG009SL		
LAB FILE ID:	TG11073A	TG11072A		
DATE EXTRACTED:	07/12/0512:00	07/12/0512:00	DATE COLLECTED:	NA
DATE ANALYZED:	07/13/0513:15	07/13/0512:33	DATE RECEIVED:	07/12/05
PREP. BATCH:	DSG009S	DSG009S		
CALIB. REF:	TG11070A	TG11070A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Diesel	ND	500	555	111	65-135

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Hexacosane	25	27.8	111	65-135

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055
METHOD: METHOD 3550B/8015B

MATRIX:	SOIL			% MOISTURE:	6.2
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	0003-015				
LAB SAMP ID:	G055-08	G055-08M	G055-08S		
LAB FILE ID:	TG11060A	TG11061A	TG11062A		
DATE EXTRACTED:	07/12/0512:00	07/12/0512:00	07/12/0512:00	DATE COLLECTED:	07/11/05
DATE ANALYZED:	07/13/0504:10	07/13/0504:52	07/13/0505:34	DATE RECEIVED:	07/11/05
PREP. BATCH:	DSG008S	DSG008S	DSG008S		
CALIB. REF:	TG11058A	TG11058A	TG11058A		

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	533	540	101	533	567	106	5	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Hexacosane	26.7	27.4	103	26.7	28	105	65-135

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EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055
METHOD: METHOD 3550B/8015B

MATRIX:	SOIL			% MOISTURE:	7.2
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	0003-029				
LAB SAMP ID:	G055-22	G055-22M	G055-22S		
LAB FILE ID:	TG11083A	TG11084A	TG11085A		
DATE EXTRACTED:	07/12/0512:00	07/12/0512:00	07/12/0512:00	DATE COLLECTED:	07/11/05
DATE ANALYZED:	07/13/0520:18	07/13/0521:00	07/13/0521:42	DATE RECEIVED:	07/11/05
PREP. BATCH:	DSG009S	DSG009S	DSG009S		
CALIB. REF:	TG11082A	TG11082A	TG11082A		

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	539	567	105	539	588	109	4	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Hexacosane	26.9	27.7	103	26.9	27.5	102	65-135

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TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12428

PROJECT NAME: UST Site 16144	PURCHASE ORDER NO.:	LABORATORY NAME: EMAX	**Project Information Section Do not submit to Laboratory**
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003		
SAMPLER NAME: Wardy Bryant	AIRBILL NUMBER: Courier	LABORATORY ID (FOR LABORATORY): 05G064	
PROJECT CONTACT: Seveda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549		

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-D 8015B	VOCs 8260B* 5035	COMMENTS	SITE LOCATION 16144	DEPTH START	DEPTH END	QC
0003-035	7/12/05	1014	1	X		S	3 Day	X			B-13	5.0	5.5	RG
0003-036	7/12/05	1023		X		S	3 Day	X			B-13	10.0	10.5	RG
0003-037	7/12/05	1033	1	X		S	3 Day	X			B-13	15.0	15.5	RG
0003-038	7/12/05	1041	1	X		S	3 Day	X			B-13	20.0	20.5	RG
0003-039	7/12/05	1049	1	X		S	3 Day	X			B-13	25.0	25.5	RG
0003-040	7/12/05	1100	4	X		S	3 Day	X	X		B-13	30.0	30.5	RG
0003-041	7/12/05	1107	4		X	S	3 Day	X	X		B-13	35.0	35.5	RG
0003-042	7/12/05	1119	4	X		S	3 Day	X	X		B-13	40.0	40.5	RG
0003-043	7/12/05	1125	4	X		S	3 Day	X	X		B-13	45.0	45.5	RG
0003-044	7/12/05	[illegible]		X		S	3 Day	X			B-13	50.0	50.5	RG

RELINQUISHED BY (Signature): [signature]	DATE: 7/12/05	RECEIVED BY (Signature): [signature]
COMPANY: TtEMI	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):
COMPANY:	TIME:	COMPANY:
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):
COMPANY:	TIME:	COMPANY:

LABORATORY INSTRUCTIONS/COMMENTS:
Hold remaining samples for additional Analy
* VOCs 8260B 10 Day TAT

COMPOSITE DESCRIPTION:

SAMPLING COMMENT:

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ______ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory Pink - Lab...

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12427

2 of 2

PROJECT NAME	PURCHASE ORDER NO.
UST Site 16144	
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973.0003
SAMPLER NAME: J. Brenner	AIRBILL NUMBER: Courier
PROJECT CONTACT: Sevda Aleckson	PROJECT CONTACT PHONE NUMBER: (949) 756-7549

ANALYSES REQUIRED: M S [illegible] / [illegible]

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 05G064

Project Information Section
Do not submit to Laboratory

Site 16144

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	ANALYSES	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-045	7/12/05	1205	1	X		[illegible]	3 day	X		B13	55.0	55.5	Reg

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
[signature]	7/12/05	[signature]
COMPANY: TtEMI	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS:
* Hold additional [illegible] for [illegible]
Analysis for VOCs by 8260B (10-day TAT)

COMPOSITE DESCRIPTION

SAMPLING COMMENT:

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Can[illegible] - Project File; [illegible]

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12426

PROJECT NAME	PURCHASE ORDER NO.	LABORATORY NAME
UST Site 16144		EMAX
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003	
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier	LABORATORY ID (FOR LABORATORY): 05G064
PROJECT CONTACT: Sevda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7545	

ANALYSES REQUIRED: TPH-d 8015B; *VOCs 8260B

Project Information Section — Do not submit to Laboratory
Site 16144

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-d 8015B	VOCs 8260B	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-046	7/12/05	1420	1	X				X			B-10	5.0	5.5	
0003-047	7/12/05	1425	1	X				X			B-10	10.0	10.5	
0003-048	7/12/05	1435	1	X				X			B10	15.0	15.5	
0003-049	7/12/05	1445	1		X			X			B-10	20.0	20.5	
0003-050	7/12/05	1455	1	X				X			B-10	25.0	25.5	
0003-051	7/12/05	1501	1	X				X			B-10	30.0	30.5	
0003-052	7/12/05	1512	4	X				X	X		B-10	35.0	35.5	
0003-053	7/12/05	1520	4	X				X	X		B-10	40.0	40.5	
0003-054	7/12/05	1535	4	X				X	X		B10	45.0	45.5	

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
[signature]	7/12/05	[signature]
COMPANY: TtEMI	TIME: 1715	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS: * [illegible]

COMPOSITE DESCRIPTION

SAMPLING COMMENT:

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ______ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; ...

COPY

TABLE OF CONTENTS

CLIENT: **SES-TECH**

PROJECT: **CAMP PENDLETON, UST SITE 16144**

SDG: **05G064**

** - Not Requested

EMAX LABORATORIES, INC 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-18-2005
EMAX Batch No.: 05G064

Attn: Sevda Aleckson

SES-TECH
1940 E. Deere Avenue, Suite 200
Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/12/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-035	G064-01	07/12/05	SOIL	TPH DIESEL
0003-036	G064-02	07/12/05	SOIL	TPH DIESEL
0003-037	G064-03	07/12/05	SOIL	TPH DIESEL
0003-038	G064-04	07/12/05	SOIL	TPH DIESEL
0003-039	G064-05	07/12/05	SOIL	TPH DIESEL
0003-040	G064-06	07/12/05	SOIL	TPH DIESEL
0003-041	G064-07	07/12/05	SOIL	TPH DIESEL
0003-042	G064-08	07/12/05	SOIL	TPH DIESEL
0003-043	G064-09	07/12/05	SOIL	TPH DIESEL
0003-044	G064-10	07/12/05	SOIL	TPH DIESEL
0003-045	G064-11	07/12/05	SOIL	TPH DIESEL
0003-046	G064-12	07/12/05	SOIL	TPH DIESEL
0003-047	G064-13	07/12/05	SOIL	TPH DIESEL
0003-048	G064-14	07/12/05	SOIL	TPH DIESEL
0003-049	G064-15	07/12/05	SOIL	TPH DIESEL
0003-050	G064-16	07/12/05	SOIL	TPH DIESEL
0003-051	G064-17	07/12/05	SOIL	TPH DIESEL
0003-052	G064-18	07/12/05	SOIL	TPH DIESEL
0003-053	G064-19	07/12/05	SOIL	TPH DIESEL

Sample ID	Control #	Col Date	Matrix	Analysis
0003-054	G064-20	07/12/05	SOIL	TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these ,results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

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EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

TETRA TECH JS/VS01-04 **CHAIN-OF-CUSTODY RECORD** NUMBER 12426 05G064

1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

PROJECT NAME: UST Site 16144	PURCHASE ORDER NO:
PROJECT LOCATION: Camp Pendleton	PROJECT NO: 2973-0003
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Seuda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 05G064

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	ANALYSES REQUIRED: TPH-d 8015B	VOC's 8260B*	COMMENTS
12	0003-046	7/12/05	1420	1	X		Soil	3 Day	X		
13	0003-047	7/12/05	1425	1	X		Soil	3 Day	X		
14	0003-048	7/12/05	1435	1	X		Soil	3 Day	X		
15	0003-049	7/12/05	1445	1		X	Soil	3 Day	X		
16	0003-050	7/12/05	1455	1	X		Soil	3 Day	X		
17	0003-051	7/12/05	1501	1	X		Soil	3 Day	X		
18	0003-052 (D)	7/12/05	1512	4	X		Soil	3 Day	X	X	
19	0003-053	7/12/05	1520	4	X		Soil	3 Day	X	X	
20	0003-054	7/12/05	1535	4	X		Soil	3 Day	X	X	

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY: TtEc	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE: 7/12/05	RECEIVED BY (Signature)
COMPANY: EMAX	TIME: 1730	COMPANY: Emax
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS: * HOLD ADDITIONAL SAMPLE FOR POSSIBLE ANALYSIS FOR VOCs BY (8260 B)

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ____ SAMPLE CONDITION: ☒ INTACT ☐ BROKEN
COOLER SEAL: ☒ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TETRA TECH J5/0501-04

1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 12427

05G064

PROJECT NAME: UST SITE 16144	PURCHASE ORDER NO	ANALYSES REQUIRED	LABORATORY NAME: EMAX
PROJECT LOCATION: CAMP PENDLETON	PROJECT NO: 2973.0003		LABORATORY ID (FOR LABORATORY): 05G064
SAMPLER NAME: J. BRENNER	AIRBILL NUMBER: COURIER		
PROJECT CONTACT: SENDA ALEXSON	PROJECT CONTACT PHONE NUMBER: (949) 756-7545		

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	COMMENTS
11	0003-045	7/12/05	1205	1	X		SOIL	3 DAY	

RELINQUISHED BY (Signature) — DATE 7/14/05 — TIME 1505 — COMPANY TETRA TECH

RELINQUISHED BY (Signature) — DATE 7/20/05 — TIME 1730 — COMPANY EMAX

RELINQUISHED BY (Signature) — DATE — TIME — COMPANY

RECEIVED BY (Signature) — COMPANY EMAX

RECEIVED BY (Signature) — COMPANY

RECEIVED BY (Signature) — COMPANY

LABORATORY INSTRUCTIONS/COMMENTS: * HOLD ADDITIONAL SAMPLES FOR POSSIBLE ANALYSIS FOR VOCs BY 8260B (10-DAY TAT)

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)

TEMPERATURE: _____ SAMPLE CONDITION: ☑ INTACT ☐ BROKEN

COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-[illegible]

NUMBER 12428

CHAIN-OF-CUSTODY RECORD

JS/USO1-04

05G064

PROJECT NAME: UST Site 161444	PURCHASE ORDER NO:
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Seyda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549

ANALYSES REQUIRED: TPH-d 8015B*; VOCs 8260B*; SVOCs 8270C

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 05G064

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-d 8015B*	VOCs 8260B*	SVOCs 8270C	COMMENTS
1	0003-035	7/12/05	1014	1	X		Soil	3 Day	X			
2	0003-036	7/12/05	1023	1	X		Soil	3 Day	X			
3	0003-037	7/12/05	1033	1	X		Soil	3 Day	X			
4	0003-038	7/12/05	1041	1	X		Soil	3 Day	X			
5	0003-039	7/12/05	1049	1	X		Soil	3 Day	X			
6	0003-040	7/12/05	1100	4	X		Soil	3 Day	X	X		
7	0003-041	7/12/05	1107	4		X	Soil	3 Day	X	X		
8	0003-042	7/12/05	1119	4	X		Soil	3 Day	X	X		
9	0003-043	7/12/05	1145	4	X		Soil	3 Day	X	X		
10	0003-044	7/12/05	1200	4	X		Soil	3 Day	X			

RELINQUISHED BY (Signature)	DATE 7/12/05	RECEIVED BY (Signature)	LABORATORY INSTRUCTIONS/COMMENTS: Hold remaining samples for additional Analy
COMPANY TtA	TIME 1545	COMPANY EMAX	* VOCs 8260B 10 Day TAT
RELINQUISHED BY (Signature)	DATE 7/20/05	RECEIVED BY (Signature)	COMPOSITE DESCRIPTION
COMPANY EMAX	TIME 1730	COMPANY EMAX	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
COMPANY	TIME	COMPANY	TEMPERATURE: 3.0 °C SAMPLE CONDITION: ☑ INTACT ☐ BROKEN
			COOLER SEAL: ☑ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Hanh Bui

From: Richard Beauvil
Sent: Thursday, July 14, 2005 10:59 AM
To: Hanh Bui
Subject: FW: Bottle order for Friday

Hi Hanh,

Please find the email below. Please put a copy in the master folder.

Thank you.

Richard.
-----Original Message-----
From: Richard Beauvil
Sent: Wednesday, July 13, 2005 5:26 PM
To: 'Tania.TurpijnKeasler@tteci.com'
Subject: RE: Bottle order for Friday

Hi Tanya,

Thank you. As per our phone conversation, we will hold the samples for 8260B until further notice. I will revise the login for 05G055 to remove the 8260 and log only tph-ext for 05G064 received yesterday. We will freeze the encores received yesterday for additional analysis later. For the 14 samples already extracted the price is $25.00/sample.

Thank you.

Richard.

-----Original Message-----
From: Tania.TurpijnKeasler@tteci.com [mailto:Tania.TurpijnKeasler@tteci.com]
Sent: Wednesday, July 13, 2005 4:24 PM
To: RBeauvil@emaxlabs.com
Subject: Bottle order for Friday

Richard,

I would like the following bottles, coolers and trip blanks delivered to Santa Ana on Friday. Call or e-mail if you have questions.

5 cases (12 ct) of 1 liter amber bottles
1 box (72 ct??) of Hcl preserved 40 mil voas.

Lets start with 5-6 coolers and 15 trip blanks.

I think that covers it. We plan to begin groundwater sampling on Monday and will need pick-ups through Thursday. We maybe able to skip some pick up days, as all the holding times are 14 days (I believe). We will be sampling under PO 053915 Site 1791 and CTO 03 PO 055850 Site 16144 That is the sap you didn't have I will attach a version of the text you have the tables. Analysis will be for TPH-d, PAHs and VOCs.

Thank you,

Tania

1005

(See attached file: 050277 Final SAP_Rev0.doc)

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EMAX

EMAX-SM02
Rev. 3
Appendix 2

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill		
☑ EMAX Courier	SEE C.O.C.	ECN	05 6064
☐ Client Delivery		Recepient	ANTHONY F.
☐ Third Party		Date	07.12.05
		Time	17:30

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler ONE	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAGS
Temperatures	☑ Cooler 1 3.0°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 07.12.05.

SRF _____ Date 7/13/05

PM _____ Date 7/13/05

1007

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G064

5000

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G064

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Twenty (20) soil samples were received on 07/12/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3520C/8015B in accordance with SW846 3RD Edition.

1. **Holding Time**

   Analytical holding time was met. Extraction was performed and completed on 07/13/05.

2. **Calibration**

   Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. **Method Blank**

   Method blank was free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   All recoveries were within QC limits.

5. **Lab Control Sample**

   Recovery was within QC limits.

6. **Matrix Spike/Matrix Spike Duplicate**

   Sample G064-07 was spiked. Recoveries were within QC limits.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G064
Instrument ID : GCT072

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	DSG015SB	1	NA	07/13/0518:35	07/13/0514:00	BG13012A	BG13011A	DSG015S	Method Blank
LCS1S	DSG015SL	1	NA	07/13/0519:18	07/13/0514:00	BG13013A	BG13011A	DSG015S	Lab Control Sample (LCS)
0003-035	G064-01	1	11.7	07/13/0520:02	07/13/0514:00	BG13014A	BG13011A	DSG015S	Field Sample
0003-036	G064-02	1	14.4	07/13/0520:45	07/13/0514:00	BG13015A	BG13011A	DSG015S	Field Sample
0003-037	G064-03	1	14.1	07/13/0521:29	07/13/0514:00	BG13016A	BG13011A	DSG015S	Field Sample
0003-038	G064-04	1	12.5	07/13/0522:12	07/13/0514:00	BG13017A	BG13011A	DSG015S	Field Sample
0003-039	G064-05	1	8.6	07/13/0522:56	07/13/0514:00	BG13018A	BG13011A	DSG015S	Field Sample
0003-040	G064-06	1	6.4	07/13/0523:40	07/13/0514:00	BG13019A	BG13011A	DSG015S	Field Sample
0003-041	G064-07	1	6.3	07/14/0503:18	07/13/0514:00	BG13024A	BG13023A	DSG015S	Field Sample
0003-041MS	G064-07M	1	6.3	07/14/0504:02	07/13/0514:00	BG13025A	BG13023A	DSG015S	Matrix Spike Sample (MS)
0003-041MSD	G064-07S	1	6.3	07/14/0504:46	07/13/0514:00	BG13026A	BG13023A	DSG015S	MS Duplicate (MSD)
0003-042	G064-08	1	7.6	07/14/0500:24	07/13/0514:00	BG13020A	BG13011A	DSG015S	Field Sample
0003-043	G064-09	1	9.3	07/14/0501:07	07/13/0514:00	BG13021A	BG13011A	DSG015S	Field Sample
0003-044	G064-10	1	8.3	07/14/0505:30	07/13/0514:00	BG13027A	BG13023A	DSG015S	Field Sample
0003-045	G064-11	1	4.0	07/14/0506:13	07/13/0514:00	BG13028A	BG13023A	DSG015S	Field Sample
0003-046	G064-12	1	13.6	07/14/0506:57	07/13/0514:00	BG13029A	BG13023A	DSG015S	Field Sample
0003-047	G064-13	1	7.2	07/14/0507:41	07/13/0514:00	BG13030A	BG13023A	DSG015S	Field Sample
0003-048	G064-14	1	16.7	07/14/0508:24	07/13/0514:00	BG13031A	BG13023A	DSG015S	Field Sample
0003-049	G064-15	1	7.1	07/14/0509:08	07/13/0514:00	BG13032A	BG13023A	DSG015S	Field Sample
0003-050	G064-16	1	9.8	07/14/0509:52	07/13/0514:00	BG13033A	BG13023A	DSG015S	Field Sample
0003-051	G064-17	1	4.2	07/14/0511:19	07/13/0514:00	BG13035A	BG13034A	DSG015S	Field Sample
0003-052	G064-18	1	7.9	07/14/0512:03	07/13/0514:00	BG13036A	BG13034A	DSG015S	Field Sample
0003-053	G064-19	1	10.6	07/14/0512:47	07/13/0514:00	BG13037A	BG13034A	DSG015S	Field Sample
0003-054	G064-20	1	8.2	07/14/0513:30	07/13/0514:00	BG13038A	BG13034A	DSG015S	Field Sample

FN - Filename
% Moist - Percent Moisture

EMAX LABORATORIES, INC.

SAMPLE RESULTS

5003

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-035	Date Analyzed: 07/13/05 20:02
Lab Samp ID: G064-01	Dilution Factor: 1
Lab File ID: BG13014A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 11.7
Calib. Ref.: BG13011A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7
SURROGATE PARAMETERS	**% RECOVERY**	**QC LIMIT**	
HEXACOSANE	114	65-135	

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-036	Date Analyzed:	07/13/05 20:45
Lab Samp ID:	G064-02	Dilution Factor:	1
Lab File ID:	BG13015A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 14.4
Calib. Ref.:	8G13011A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	112	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-037	Date Analyzed: 07/13/05 21:29
Lab Samp ID: G064-03	Dilution Factor: 1
Lab File ID: BG13016A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 14.1
Calib. Ref.: BG13011A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	110	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-038	Date Analyzed:	07/13/05 22:12
Lab Samp ID:	G064-04	Dilution Factor:	1
Lab File ID:	BG13017A	Matrix :	SOIL
Ext Btch ID:	DSG015S	% Moisture :	12.5
Calib. Ref.:	BG13011A	Instrument ID :	GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-039	Date Analyzed: 07/13/05 22:56
Lab Samp ID: G064-05	Dilution Factor: 1
Lab File ID: BG13018A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 8.6
Calib. Ref.: BG13011A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	100	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5008

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-040	Date Analyzed:	07/13/05 23:40
Lab Samp ID:	G064-06	Dilution Factor:	1
Lab File ID:	BG13019A	Matrix :	SOIL
Ext Btch ID:	DSG015S	% Moisture :	6.4
Calib. Ref.:	BG13011A	Instrument ID :	GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	105	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-041	Date Analyzed:	07/14/05 03:18
Lab Samp ID:	G064-07	Dilution Factor:	1
Lab File ID:	BG13024A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 6.3
Calib. Ref.:	BG13023A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	99	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

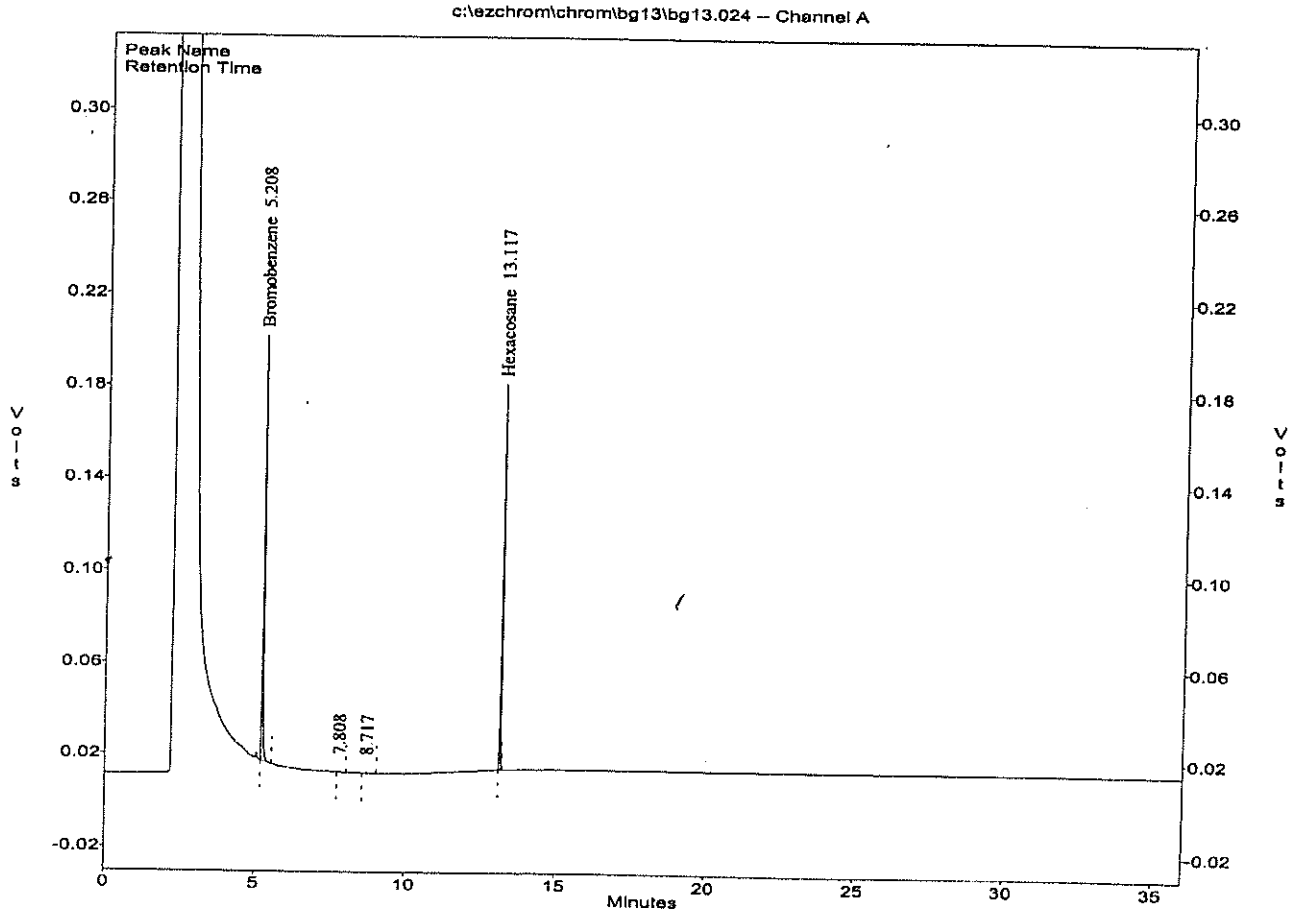
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bg13\bg13.024
Method : c:\ezchrom\methods\ds72e11.met
Sample ID : 05G064-07
Acquired : Jul 14, 2005 03:18:58
Printed : Jul 14, 2005 11:02:03
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	5.208	396658	6406.2	61.9
4	Hexacosane	13.117	296950	11957.9	24.8
G1	Diesel(TOTAL)		2555	10848.4	0.2
G2	Diesel(C10-C24)		2555	10797.5	0.2
G3	Diesel(C10-C28)		2555	10799.8	0.2



5011

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-042	Date Analyzed:	07/14/05 00:24
Lab Samp ID:	G064-08	Dilution Factor:	1
Lab File ID:	BG13020A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 7.6
Calib. Ref.:	BG13011A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	101	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID	: 0003-043	Date Analyzed:	07/14/05 01:07
Lab Samp ID	: G064-09	Dilution Factor:	1
Lab File ID	: BG13021A	Matrix	: SOIL
Ext Btch ID	: DSG015S	% Moisture	: 9.3
Calib. Ref.	: BG13011A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	100	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5013

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-044	Date Analyzed:	07/14/05 05:30
Lab Samp ID:	G064-10	Dilution Factor:	1
Lab File ID:	BG13027A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 8.3
Calib. Ref.:	BG13023A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	100	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-045	Date Analyzed: 07/14/05 06:13
Lab Samp ID: G064-11	Dilution Factor: 1
Lab File ID: BG13028A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 4.0
Calib. Ref.: BG13023A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	101	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5015

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-046	Date Analyzed: 07/14/05 06:57
Lab Samp ID: G064-12	Dilution Factor: 1
Lab File ID: BG13029A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 13.6
Calib. Ref.: BG13023A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	105	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR : Hexacosane		Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-047	Date Analyzed: 07/14/05 07:41
Lab Samp ID: G064-13	Dilution Factor: 1
Lab File ID: BG13030A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 7.2
Calib. Ref.: BG13023A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	105	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-048	Date Analyzed:	07/14/05 08:24
Lab Samp ID:	G064-14	Dilution Factor:	1
Lab File ID:	BG13031A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 16.7
Calib. Ref.:	BG13023A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-049	Date Analyzed:	07/14/05 09:08
Lab Samp ID:	G064-15	Dilution Factor:	1
Lab File ID:	BG13032A	Matrix :	SOIL
Ext Btch ID:	DSG015S	% Moisture :	7.1
Calib. Ref.:	BG13023A	Instrument ID :	GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	106	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

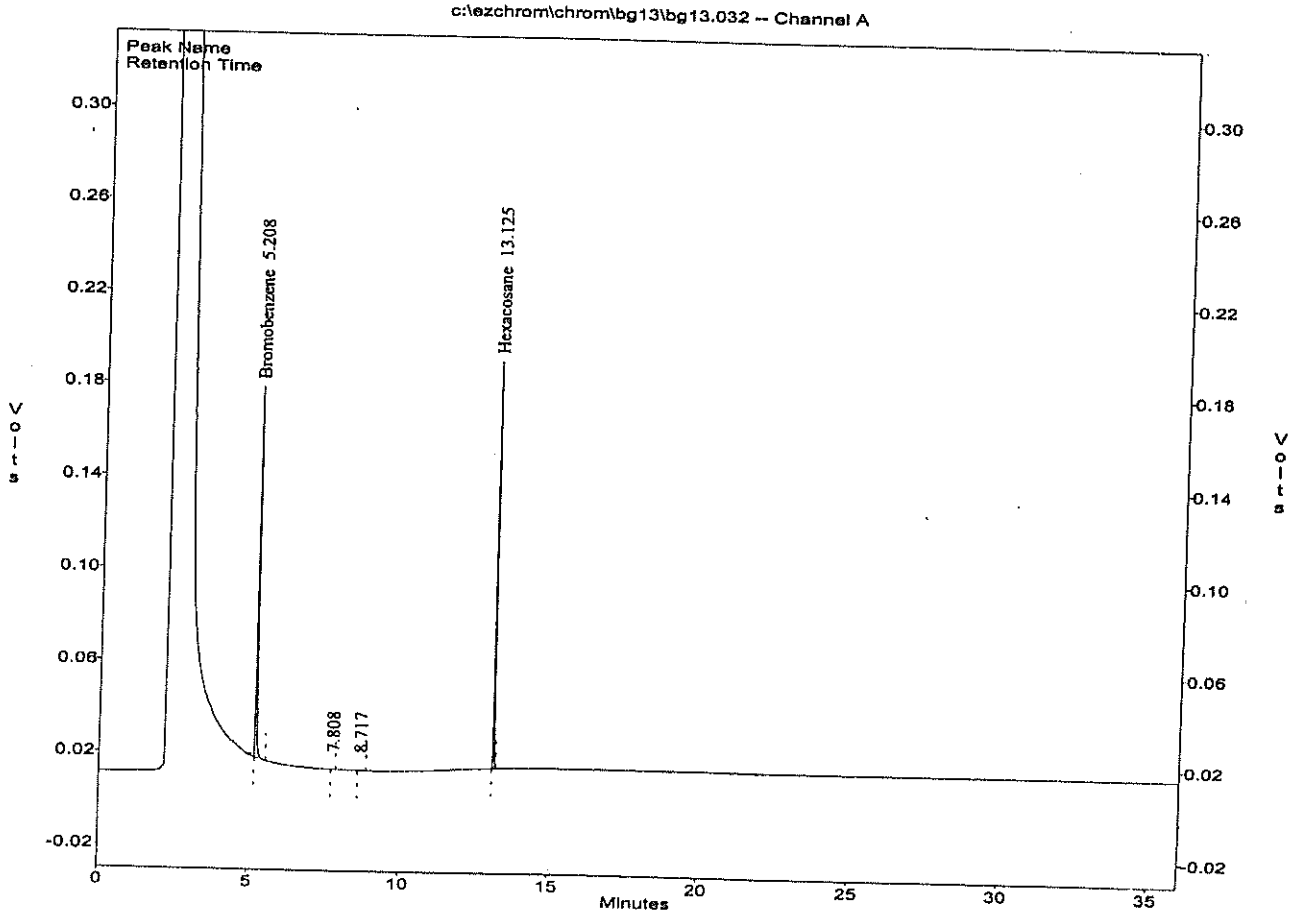
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bg13\bg13.032
Method : c:\ezchrom\methods\ds72e11.met
Sample ID : 05G064-15
Acquired : Jul 14, 2005 09:08:31
Printed : Jul 14, 2005 11:07:31
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	5.208	339700	6406.2	53.0
4	Hexacosane	13.125	315759	11957.9	26.4
G1	Diesel(TOTAL)		2474	10848.4	0.2
G2	Diesel(C10-C24)		2474	10797.5	0.2
G3	Diesel(C10-C28)		2474	10799.8	0.2



5020

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-050	Date Analyzed: 07/14/05 09:52
Lab Samp ID: G064-16	Dilution Factor: 1
Lab File ID: BG13033A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 9.8
Calib. Ref.: BG13023A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	107	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-051	Date Analyzed: 07/14/05 11:19
Lab Samp ID: G064-17	Dilution Factor: 1
Lab File ID: BG13035A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 4.2
Calib. Ref.: BG13034A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.2
SURROGATE PARAMETERS	**% RECOVERY**	**QC LIMIT**	
HEXACOSANE	103	65-135	

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR : Hexacosane		Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-052	Date Analyzed:	07/14/05 12:03
Lab Samp ID:	G064-18	Dilution Factor:	1
Lab File ID:	BG13036A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 7.9
Calib. Ref.:	BG13034A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	109	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5023

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/12/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: 0003-053	Date Analyzed: 07/14/05 12:47
Lab Samp ID: G064-19	Dilution Factor: 1
Lab File ID: BG13037A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : 10.6
Calib. Ref.: BG13034A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	108	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

		Spike	QC Limit	QC Limit
SURR : Hexacosane	Water	0.25 mg/L	63-165%	65-135%
	Soil	25 mg/kg	65-135%	65-135%

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/12/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/12/05
Batch No.	: 05G064	Date Extracted:	07/13/05 14:00
Sample ID:	0003-054	Date Analyzed:	07/14/05 13:30
Lab Samp ID:	G064-20	Dilution Factor:	1
Lab File ID:	BG13038A	Matrix	: SOIL
Ext Btch ID:	DSG015S	% Moisture	: 8.2
Calib. Ref.:	BG13034A	Instrument ID	: GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	110	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

EMAX LABORATORIES, INC.

QC SUMMARIES

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METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/13/05
Batch No. : 05G064	Date Extracted: 07/13/05 14:00
Sample ID: MBLK1S	Date Analyzed: 07/13/05 18:35
Lab Samp ID: DSG015SB	Dilution Factor: 1
Lab File ID: BG13012A	Matrix : SOIL
Ext Btch ID: DSG015S	% Moisture : NA
Calib. Ref.: BG13011A	Instrument ID : GCT072

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	123	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G064
METHOD: METHOD 3550B/8015B

MATRIX:	SOIL		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MBLK1S			
LAB SAMP ID:	DSG015SB	DSG015SL		
LAB FILE ID:	BG13012A	BG13013A		
DATE EXTRACTED:	07/13/0514:00	07/13/0514:00	DATE COLLECTED:	NA
DATE ANALYZED:	07/13/0518:35	07/13/0519:18	DATE RECEIVED:	07/13/05
PREP. BATCH:	DSG015S	DSG015S		
CALIB. REF:	BG13011A	BG13011A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Diesel	ND	500	423	85	65-135

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Hexacosane	25	30.4	122	65-135

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G064
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: 6.3

DILUTION FACTOR:	1	1	1
SAMPLE ID:	0003-041		
LAB SAMP ID:	G064-07	G064-07M	G064-07S
LAB FILE ID:	BG13024A	BG13025A	BG13026A
DATE EXTRACTED:	07/13/0514:00	07/13/0514:00	07/13/0514:00
DATE ANALYZED:	07/14/0503:18	07/14/0504:02	07/14/0504:46
PREP. BATCH:	DSG015S	DSG015S	DSG015S
CALIB. REF:	BG13023A	BG13023A	BG13023A

DATE COLLECTED: 07/12/05
DATE RECEIVED: 07/12/05

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	534	374	70	534	404	76	8	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Hexacosane	26.7	28.4	107	26.7	28.9	108	65-135

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 12429

CHAIN-OF-CUSTODY RECORD

PROJECT NAME	PURCHASE ORDER NO.	LABORATORY NAME
UST site 16H4		EMAx
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003	
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier	LABORATORY ID (FOR LABORATORY): 05G075
PROJECT CONTACT: Sevda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549	

Project Information Section
Do not submit to Laboratory

ANALYSES REQUIRED: [struck] TPH-G 8015; VOCs 8260B

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-G 8015	VOCs 8260B	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-055G	7-13-05	1030	3			W	10 Day		X		TripBlank	\	\	TB
0003-056G	7-13-05	1045	3			W	10 Day		X		B14	\	\	Rg

SKO 8/16/05 — 7/13/05 (unused rows struck through)

RELINQUISHED BY (Signature): [signature]	DATE: 7/13/05	RECEIVED BY (Signature): [signature]
COMPANY: TCFW	TIME: 10	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ___ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT: Grab samples needed to determine water levels. NO validation required. "G" denotes grab samples.
SKA

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	056075
☑ EMAX Courier	P-HATCHER	Recepient	JonLuna
☐ Client Delivery		Date	7-13-05
☐ Third Party		Time	1425

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues	☑ None ☐ High Concentrations expected	☐ Superfund Site Samples
Comments:	☐ Rad Screening Required	

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☑ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☐
Temperatures	☑ Cooler 1 3.8 °C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling J Lopez Date 7-13-05

SRF [illegible] Date 7/13/05

PM [signature] Date 7/13/05

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/13/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/13/05
Batch No.	: 05G075	Date Extracted:	07/21/05 05:07
Sample ID:	0003-055	Date Analyzed:	07/21/05 05:07
Lab Samp ID:	G075-01	Dilution Factor:	1
Lab File ID:	RGC541	Matrix :	WATER
Ext Btch ID:	V067G43	% Moisture :	NA
Calib. Ref.:	RGC517	Instrument ID :	T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	.5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	65-135
TOLUENE-D8	104	75-125
BROMOFLUOROBENZENE	97	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/13/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/13/05
Project No. : 05G075	Date Extracted: 07/21/05 07:32
Client ID: 0003-056	Date Analyzed: 07/21/05 07:32
Lab Samp ID: G075-02	Dilution Factor: 1
Lab File ID: RGC545	Matrix : WATER
Ext Btch ID: V067G43	% Moisture : NA
Calib. Ref.: RGC517	Instrument ID : T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	93	65-135
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	88	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/20/05
Batch No.	: 05G075	Date Extracted:	07/20/05 23:39
Sample ID:	MBLK1W	Date Analyzed:	07/20/05 23:39
Lab Samp ID:	V067G43Q	Dilution Factor:	1
Lab File ID:	RGC532	Matrix :	WATER
Ext Btch ID:	V067G43	% Moisture :	NA
Calib. Ref.:	RGC517	Instrument ID :	T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	65-135
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	96	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G075
METHOD: SW 5030B/8260B

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VO67G43Q VO67G43L VO67G43C
LAB FILE ID: RGC532 RGC529 RGC530
DATE EXTRACTED: 07/20/0523:39 07/20/0521:50 07/20/0522:26 DATE COLLECTED: NA
DATE ANALYZED: 07/20/0523:39 07/20/0521:50 07/20/0522:26 DATE RECEIVED: 07/20/05
PREP. BATCH: VO67G43 VO67G43 VO67G43
CALIB. REF: RGC517 RGC517 RGC517

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	10	9.6	96	10	9.89	99	3	75-125	20
Benzene	ND	10	9.82	98	10	10.2	102	4	75-125	20
Chlorobenzene	ND	10	10.1	101	10	10.4	104	3	75-125	20
Toluene	ND	10	9.94	99	10	10.2	102	3	75-125	20
Trichloroethene	ND	10	9.88	99	10	10.2	102	3	75-125	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10	9.55	96	10	9.99	100	65-135
Toluene-d8	10	10	100	10	10.7	107	75-125
Bromofluorobenzene	10	9.27	93	10	9.92	99	75-125

COPY

TABLE OF CONTENTS

CLIENT: **SES-TECH**

PROJECT: **CAMP PENDLETON, UST SITE 16144**

SDG: **05G055A**

** - Not Requested

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

received 8/31/05

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-28-2005
EMAX Batch No.: 05G055A

Attn: Sevda Aleckson

SES-TECH
1940 E. Deere Avenue, Suite 200
Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/11/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-014	G055-07	07/11/05	SOIL	VOLATILE ORGANICS BY GC/MS PAH BY HPLC
0003-027	G055-20	07/11/05	SOIL	VOLATILE ORGANICS BY GC/MS PAH BY HPLC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours, for

Kam Y. Pang, Ph.D.
Laboratory Director

CHANGE ORDER FORM

SDG 05G055A TAT 10 days Project Code SES_0507

Requested by Richard Date Requested 7/15/05 Due Date 7/25/05

Analytical Requirements				
AXO	EMAX Control Number	Sample Prep. Methods	Analytical Methods	Special Instructions
A	05G055A-07	5035	8260	0003-014
		3550B	8310	
A	05G055A-20	5035	8260	0003-027
		3550B	8310	

A-additional
X-cancelled
O-others (specify)

Rmb 7/15/05

1001

Richard Beauvil

From: Tania.TurpijnKeasler@tteci.com
Sent: Friday, July 15, 2005 9:19 AM
To: Richard Beauvil
Cc: 'Sevda@enviromatrix.com'; Sevda Aleckson (E-mail); Tanya Turpijn-Keasler (E-mail)
Subject: Re: 05g055

Richard,

Thank you for the results. Please do additional analysis for VOC's and PAHs
with a 10 day TAT on samples 0003-014 and 0003-027.

Also, please cc Mark Cutler on the results from the second set of samples
(mark.cutler@tteci.com).

Thank you,

Tania

1002

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

G3/VS01-04

CHAIN-OF-CUSTODY RECORD

NUMBER 12422

05G055

PROJECT NAME	PURCHASE ORDER NO	LABORATORY NAME
UST Site 16144		EMAX
PROJECT LOCATION	**PROJECT NO**	**LABORATORY ID (FOR LABORATORY)**
Camp Pendleton	2993.0003	05G055
SAMPLER NAME	**AIRBILL NUMBER**	
	Courier	
PROJECT CONTACT	**PROJECT CONTACT PHONE NUMBER**	
Sevda Arzrikson	949-756-7549	

ANALYSES REQUIRED (KB 7/11/05)

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPH-d 8015B	VOC's 8260B*	COMMENTS
1	0003-008	7-11-05	0958	3	X		Soil	3 day		X	
2	0003-009	7-11-05	1004	4	X		Soil	3 day	X	X	
3	0003-010	7-11-05	1010	4	X		Soil	3 day	X	X	
4	0003-011	7-11-05	1016	4	X		Soil	3 day	X	X	
5	0003-012	7-11-05	1020	4	X		Soil	3 day	X	X	
6	0003-013	7-11-05	1037	4	X		Soil	3 day	X	X	
7	0003-014	7-11-05	1046	4	X		Soil	3 day	X	X	
8	0003-015	7-11-05	1113	1	X		Soil	3 day	X		
9	0003-016	7-11-05	1123	1	X		Soil	3 day	X		
10	0003-017	7-11-05	1137	1	X		Soil	3 day	X		

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
[signature]	DATE 7/11/05	[signature]
COMPANY [signature]	TIME 1545	COMPANY EMAX
RELINQUISHED BY (Signature) [signature]	DATE 7/11/05	RECEIVED BY (Signature) [signature]
COMPANY EMAX	TIME 1730	COMPANY emax
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS
HOLD Remaining sample for additional analysis
*VOCs 8260B 10 DAY TAT

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: 2.8°C SAMPLE CONDITION: ☑ INTACT ☐ BROKEN
COOLER SEAL: ☑ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

G3/VS01-04

CHAIN-OF-CUSTODY RECORD

NUMBER 12423

05G055

PROJECT NAME: UST Site 16144
PROJECT LOCATION: Camp Pendleton
SAMPLER NAME: Wendy Bryant
PROJECT CONTACT: Selda Aleckson
PURCHASE ORDER NO:
PROJECT NO.: 2973-0003
AIRBILL NUMBER: Courier
PROJECT CONTACT PHONE NUMBER: 949-756-7549
LABORATORY NAME: EMax
LABORATORY ID (FOR LABORATORY): 05G055

ANALYSES REQUIRED: TPHd 8015B; * VOC's 8260B (WB 7/11/05)

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	TPHd 8015B	* VOC's 8260B	COMMENTS
11	0003-018	7-11-05	1143	1		X	Soil	3 day	X		
12	0003-019	7-11-05	1156	1	X		Soil	3 day	X		
13	0003-020	7-11-05	1330	2	X		Soil	3 day	X		
14	0003-021	7-11-05	1335	2	X		Soil	3 day	X		
15	0003-022	7-11-05	1340	2	X		Soil	3 day	X		
16	0003-023	7-11-05	1410	4	X		Soil	3 day	X	X	
17	0003-024	7-11-05	1420	4	X		Soil	3 day	X	X	
18	0003-025	7-11-05	1435	4	X		Soil	3 day	X	X	
19	0003-026	7-11-05	1443	4	X		Soil	3 day	X	X	
20	0003-027	7-11-05	1451	4	X		Soil	3 day	X	X	

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
[signature]	7-11-05	[signature]
COMPANY: Tetra Tech	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature): [signature]	DATE: 7-11-05	RECEIVED BY (Signature): [signature]
COMPANY: EMAX	TIME: 1730	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY INSTRUCTIONS/COMMENTS: Hold Remaining sample for Additional analysis * VOCs 8260B 10 Day TAT

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: ____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

EMAX

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 12424

CHAIN-OF-CUSTODY RECORD

G3/WS01-04 05G055

PROJECT NAME: UST Site 16144	PURCHASE ORDER NO.
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973-0003
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Sevda Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7545

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	ANALYSES REQUIRED: TPHd 8015B	VOCs 8260B*	COMMENTS
21	0003-028	7-11-05	1301	4	X		SOIL	3 day	X	X	
22	0003-029	7-11-05	1513	4		X	SOIL	3 day	X	X	
23	0003-030	7-11-05	1521	~~4~~ 1	X		SOIL	3 day	X	X	MS, 7-11-05
24	0003-031	7-11-05	1535	1	X		SOIL	3 day	X		

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY: EFA	TIME: 1545	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE: 7/11/05	RECEIVED BY (Signature)
COMPANY: EMAX	TIME: 1730	COMPANY: EMAX
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)
COMPANY	TIME	COMPANY

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 05G055

LABORATORY INSTRUCTIONS/COMMENTS: Hold remaining samples for additional analysis
*VOCs 8260B 10 Day TAT

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

1005

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EMAX-SM02
Rev. 3
Appendix 2

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill		
☑ EMAX Courier	PHIL HATCHER	ECN	05G055
☐ Client Delivery		Recepient	J. LUNA
☐ Third Party		Date	7-11-05
		Time	1730

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☐ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☑ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAG
Temperatures	☑ Cooler 1 1°	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
		NO ANALYSIS ON ALL TUBES	

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling AF
Date 07-11-05

SRF
Date 7/12/05

PM
Date 7/12/05

1006

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

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LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

SDG#: 05G055A

2000

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G055A

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Two (2) soil samples were received on 07/11/05 for Volatile Organic analysis by Method 5035/8260B in accordance with USEPA SW846, 3rd ed.

1. **Holding Time**

   Analytical holding time was met.

2. **Tuning and Calibration**

   Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. **Method Blank**

   Method blanks were free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   Recoveries were within QC limit.

5. **Lab Control Sample/Lab Control Sample Duplicate**

   Recoveries were within QC limit.

6. **Matrix Spike/Matrix Spike Duplicate**

   No MS/MSD sample was designated in this SDG.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G055A
Instrument ID : T-003

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	V003G45B	1	NA	07/20/0517:13	07/20/0517:13	RGB515	RFB593	V003G45	Method Blank
LCS1S	V003G45X	1	NA	07/20/0516:34	07/20/0516:34	RGB514	RFB593	V003G45	Lab Control Sample (LCS)
LCD1S	V005G45C	1	NA	07/20/0515:55	07/20/0515:55	RGB513	RFB593	V003G45	LCS Duplicate
MBLK2S	VPG006SB	1	NA	07/20/0519:08	07/20/0519:08	RGB517	RFB593	V003G45	Method Blank
0003-014	G055-07	.88	10.2	07/20/0522:58	07/20/0522:58	RGB523	RFB593	V003G45	Field Sample
0003-027	G055-20	.81	20.5	07/20/0523:36	07/20/0523:36	RGB524	RFB593	V003G45	Field Sample

FN - Filename
% Moist - Percent Moisture

2002

EMAX

SAMPLE RESULTS

2003

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055A	Date Extracted: 07/20/05 22:58
Sample ID: 0003-014	Date Analyzed: 07/20/05 22:58
Lab Samp ID: G055-07	Dilution Factor: .88
Lab File ID: RGB523	Matrix : SOIL
Ext Btch ID: V003G45	% Moisture : 10.2
Calib. Ref.: RFB593	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	4.9	2
1,1,2,2-TETRACHLOROETHANE	ND	4.9	2
1,1,2-TRICHLOROETHANE	ND	4.9	2
1,1-DICHLOROETHANE	ND	4.9	2
1,1-DICHLOROETHENE	ND	4.9	2
1,2-DICHLOROETHANE	ND	4.9	2
1,2-DICHLOROPROPANE	ND	4.9	2
METHYL ETHYL KETONE	ND	49	2
2-HEXANONE	ND	49	4.9
4-METHYL-2-PENTANONE (MIBK)	ND	49	4.9
ACETONE	21J	49	4.9
BENZENE	ND	4.9	2
BROMODICHLOROMETHANE	ND	4.9	2
BROMOFORM	ND	4.9	2
BROMOMETHANE	ND	4.9	2
CARBON TETRACHLORIDE	ND	4.9	2
CHLOROBENZENE	ND	4.9	2
CHLOROETHANE	ND	4.9	2
CHLOROFORM	ND	4.9	2
CHLOROMETHANE	ND	4.9	2
CIS-1,2-DICHLOROETHENE	ND	4.9	2
CIS-1,3-DICHLOROPROPENE	ND	4.9	2
DIBROMOCHLOROMETHANE	ND	4.9	2
ETHYLBENZENE	ND	4.9	2
XYLENES	ND	15	2
MTBE	ND	9.8	2
METHYLENE CHLORIDE	ND	4.9	2
STYRENE	ND	4.9	2
TETRACHLOROETHYLENE	ND	4.9	2
TOLUENE	ND	4.9	2
TRANS-1,2-DICHLOROETHENE	ND	4.9	2
TRANS-1,3-DICHLOROPROPENE	ND	4.9	2
TRICHLOROETHENE	ND	4.9	2
VINYL ACETATE	ND	49	2
VINYL CHLORIDE	ND	4.9	2
TERT-BUTYL ALCOHOL	ND	49	9.8
DIISOPROPYL ETHER	ND	4.9	2
ETHYL TERT-BUTYL ETHER	ND	4.9	2
TERT-AMYL METHYL ETHER	ND	4.9	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	112	60-140
TOLUENE-D8	96	65-135
BROMOFLUOROBENZENE	96	65-135

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

2004

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/11/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/11/05
Batch No. : 05G055A	Date Extracted: 07/20/05 23:36
Sample ID: 0003-027	Date Analyzed: 07/20/05 23:36
Lab Samp ID: G055-20	Dilution Factor: .81
Lab File ID: RGB524	Matrix : SOIL
Ext Btch ID: V003G45	% Moisture : 20.5
Calib. Ref.: RFB593	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.1	2
1,1,2,2-TETRACHLOROETHANE	ND	5.1	2
1,1,2-TRICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHENE	ND	5.1	2
1,2-DICHLOROETHANE	ND	5.1	2
1,2-DICHLOROPROPANE	ND	5.1	2
METHYL ETHYL KETONE	ND	51	2
2-HEXANONE	ND	51	5.1
4-METHYL-2-PENTANONE (MIBK)	ND	51	5.1
ACETONE	28J	51	5.1
BENZENE	ND	5.1	2
BROMODICHLOROMETHANE	ND	5.1	2
BROMOFORM	ND	5.1	2
BROMOMETHANE	ND	5.1	2
CARBON TETRACHLORIDE	ND	5.1	2
CHLOROBENZENE	ND	5.1	2
CHLOROETHANE	ND	5.1	2
CHLOROFORM	ND	5.1	2
CHLOROMETHANE	ND	5.1	2
CIS-1,2-DICHLOROETHENE	ND	5.1	2
CIS-1,3-DICHLOROPROPENE	ND	5.1	2
DIBROMOCHLOROMETHANE	ND	5.1	2
ETHYLBENZENE	ND	5.1	2
XYLENES	ND	15	2
MTBE	ND	10	2
METHYLENE CHLORIDE	ND	5.1	2
STYRENE	ND	5.1	2
TETRACHLOROETHYLENE	ND	5.1	2
TOLUENE	ND	5.1	2
TRANS-1,2-DICHLOROETHENE	ND	5.1	2
TRANS-1,3-DICHLOROPROPENE	ND	5.1	2
TRICHLOROETHENE	ND	5.1	2
VINYL ACETATE	ND	51	2
VINYL CHLORIDE	ND	5.1	2
TERT-BUTYL ALCOHOL	ND	51	10
DIISOPROPYL ETHER	ND	5.1	2
ETHYL TERT-BUTYL ETHER	ND	5.1	2
TERT-AMYL METHYL ETHER	ND	5.1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	60-140
TOLUENE-D8	93	65-135
BROMOFLUOROBENZENE	99	65-135

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

2005

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QC SUMMARY

2006

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/20/05
Batch No.	: 05G055A	Date Extracted:	07/20/05 17:13
Sample ID:	MBLK1S	Date Analyzed:	07/20/05 17:13
Lab Samp ID:	V003G45B	Dilution Factor:	1
Lab File ID:	RG8515	Matrix	: SOIL
Ext Btch ID:	V003G45	% Moisture	: NA
Calib. Ref.:	RF8593	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
METHYL ETHYL KETONE	ND	50	2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	15	2
MTBE	ND	10	2
METHYLENE CHLORIDE	ND	5	2
STYRENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
TERT-BUTYL ALCOHOL	ND	50	10
DIISOPROPYL ETHER	ND	5	2
ETHYL TERT-BUTYL ETHER	ND	5	2
TERT-AMYL METHYL ETHER	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	91	60-140
TOLUENE-D8	99	65-135
BROMOFLUOROBENZENE	102	65-135

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

2007

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055A
METHOD: SW 5035/8260B

MATRIX:	SOIL			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1S				
LAB SAMP ID:	V003G45B	V003G45X	V005G45C		
LAB FILE ID:	RGB515	RGB514	RGB513		
DATE EXTRACTED:	07/20/0517:13	07/20/0516:34	07/20/0515:55	DATE COLLECTED:	NA
DATE ANALYZED:	07/20/0517:13	07/20/0516:34	07/20/0515:55	DATE RECEIVED:	07/20/05
PREP. BATCH:	V003G45	V003G45	V003G45		
CALIB. REF:	RFB593	RFB593	RFB593		

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	20	20.6	103	20	20.8	104	1	65-135	30
Benzene	ND	20	21.1	105	20	21.7	108	3	65-135	30
Chlorobenzene	ND	20	21.3	106	20	21.8	109	2	65-135	30
Toluene	ND	20	21.4	107	20	22	110	3	65-135	30
Trichloroethene	ND	20	21.1	105	20	21.9	109	4	65-135	30

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	50	48.3	97	50	48.4	97	60-140
Toluene-d8	50	48.4	97	50	48.6	97	65-135
Bromofluorobenzene	50	49.5	99	50	49.5	99	65-135

2008

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/20/05
Batch No.	: 05G055A	Date Extracted:	07/20/05 19:08
Sample ID:	MBLK2S	Date Analyzed:	07/20/05 19:08
Lab Samp ID:	VPG006SB	Dilution Factor:	1
Lab File ID:	RGB517	Matrix	: SOIL
Ext Btch ID:	V003G45	% Moisture	: NA
Calib. Ref.:	RFB593	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
METHYL ETHYL KETONE	ND	50	2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	15	2
MTBE	ND	10	2
METHYLENE CHLORIDE	ND	5	2
STYRENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
TERT-BUTYL ALCOHOL	ND	50	10
DIISOPROPYL ETHER	ND	5	2
ETHYL TERT-BUTYL ETHER	ND	5	2
TERT-AMYL METHYL ETHER	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	112	60-140
TOLUENE-D8	99	65-135
BROMOFLUOROBENZENE	96	65-135

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out
Preservation Date: 07/12/05 12:45

2009

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 3550B/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

SDG#: 05G055A

6000

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G055A

SW 3550B/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

Two (2) soil samples were received on 07/11/05 for Polynuclear Aromatic Hydrocarbons analysis by Method 3550B/8310 in accordance with SW846, 3rd edition and EMAX-8310 SOP.

1. **Holding Time**

   Analytical holding time was met. Extraction was started and completed on 07/18/05.

2. **Calibration**

   Initial calibration was seven points. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals. Recoveries were within 85-115%.

3. **Method Blank**

   Method blank was free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   Recoveries of samples G055-07 and 20 were out of QC limits. Recovery of G055-07T could not be evaluated due to dilution.

5. **Lab Control Sample / Lab Control Sample Duplicate**

   All recoveries were within QC limits.

6. **Matrix Spike/Matrix Spike Duplicate**

   No MS/MSD sample was designated in this SDG.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. Results were reported from UV detector and FL detector was for confirmation only. Acenaphthylene, which had no response in FL detector, was confirmed by GC/MS for results above R.L.

   Sample G055-07 could only be confirmed by GC/MS-SIM at 100x dilution due to high viscosity of the sample.

LAB CHRONICLE
POLYNUCLEAR AROMATIC HYDROCARBONS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G055A
Instrument ID : T034

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	PAG003WB	1	NA	07/19/0512:59	07/18/0511:30	RG19003A	RG19002A	PAG003W	Method Blank
LCS1S	PAG003WL	1	NA	07/19/0513:24	07/18/0511:30	RG19004A	RG19002A	PAG003W	Lab Control Sample (LCS)
LCD1S	PAG003WC	1	NA	07/19/0513:50	07/18/0511:30	RG19005A	RG19002A	PAG003W	LCS Duplicate
0003-014	G055-07	1	10.2	07/19/0514:40	07/18/0511:30	RG19007A	RG19002A	PAG003W	Field Sample
0003-014DL	G055-07T	10	10.2	07/19/0515:31	07/18/0511:30	RG19009A	RG19002A	PAG003W	Diluted Sample
0003-027	G055-20	1	10.5	07/19/0514:15	07/18/0511:30	RG19006A	RG19002A	PAG003W	Field Sample

FN - Filename
% Moist - Percent Moisture

6002

EMAX

SAMPLE RESULTS

SW 3550B/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055A	Date Extracted:	07/18/05 11:30
Sample ID:	0003-014	Date Analyzed:	07/19/05 14:40
Lab Samp ID:	G055-07	Dilution Factor:	1
Lab File ID:	RG19007A	Matrix	: SOIL
Ext Btch ID:	PAG003W	% Moisture	: 10.2
Calib. Ref.:	RG19002A	Instrument ID	: T-034

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)	
NAPHTHALENE	(4100E)	2100	19	11	11
ACENAPHTHYLENE	(ND)	NA	19	9	NA
ACENAPHTHENE	(360)	1200	19	11	11
FLUORENE	(1700E)	820E	19	2.2	2.2
PHENANTHRENE	(2700E)	1500E	19	1.1	1.1
ANTHRACENE	720	(ND)	19	1.1	1.1
FLUORANTHENE	(ND)	ND	19	2.2	2.2
PYRENE	(ND)	130	19	1.1	1.1
BENZO(A)ANTHRACENE	(1800)	2300	19	1.1	1.1
CHRYSENE	(210E)	170E	19	1.1	1.1
BENZO(B)FLUORANTHENE	(ND)	ND	19	2.2	2.2
BENZO(K)FLUORANTHENE	(570)	48	19	1.1	1.1
BENZO(A)PYRENE	84	(ND)	19	1.1	1.1
DIBENZO(A,H)ANTHRACENE	150	(ND)	19	4.5	4.5
BENZO(G,H,I)PERYLENE	95	(ND)	19	2.2	2.2
INDENO(1,2,3-CD)PYRENE	42	(ND)	19	1.1	1.1

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
P-TERPHENYL-D14	(1056*)	258*	50-130

RL: Reporting Limit
Left of | is related to UV detector; Right of | related to FL detector
Final result indicated by ( )
(*): Out of QC limit due to matrix interference

SW 3550B/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055A	Date Extracted:	07/18/05 11:30
Sample ID	: 0003-014DL	Date Analyzed:	07/19/05 15:31
Lab Samp ID	: G055-07T	Dilution Factor:	10
Lab File ID	: RG19009A	Matrix	: SOIL
Ext Btch ID	: PAG003W	% Moisture	: 10.2
Calib. Ref.	: RG19002A	Instrument ID	: T-034

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)	
NAPHTHALENE	(4100)	2200	190	110	110
ACENAPHTHYLENE	(ND)	NA	190	90	NA
ACENAPHTHENE	(390)	1200	190	110	110
FLUORENE	(1700)	820	190	22	22
PHENANTHRENE	(2800)	1700	190	11	11
ANTHRACENE	730	(ND)	190	11	11
FLUORANTHENE	(ND)	ND	190	22	22
PYRENE	(ND)	170J	190	11	11
BENZO(A)ANTHRACENE	(1700)	2300	190	11	11
CHRYSENE	(210)	220	190	11	11
BENZO(B)FLUORANTHENE	(ND)	ND	190	22	22
BENZO(K)FLUORANTHENE	(580)	57J	190	11	11
BENZO(A)PYRENE	68J	(ND)	190	11	11
DIBENZO(A,H)ANTHRACENE	220	(ND)	190	45	45
BENZO(G,H,I)PERYLENE	(ND)	ND	190	22	22
INDENO(1,2,3-CD)PYRENE	31J	(ND)	190	11	11

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
P-TERPHENYL-D14	(DO)	DO	50-130

RL: Reporting Limit
Left of | is related to UV detector; Right of | related to FL detector
Final result indicated by ( )
DO: Diluted Out

SW 3550B/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

Client	: SES-TECH	Date Collected:	07/11/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/11/05
Batch No.	: 05G055A	Date Extracted:	07/18/05 11:30
Sample ID	: 0003-027	Date Analyzed:	07/19/05 14:15
Lab Samp ID	: G055-20	Dilution Factor:	1
Lab File ID	: RG19006A	Matrix	: SOIL
Ext Btch ID	: PAG003W	% Moisture	: 10.5
Calib. Ref.	: RG19002A	Instrument ID	: T-034

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)	
NAPHTHALENE	18J	(ND)	19	11	11
ACENAPHTHYLENE	(ND)	NA	19	9.1	NA
ACENAPHTHENE	(17J)	15J	19	11	11
FLUORENE	(83)	37	19	2.2	2.2
PHENANTHRENE	(95)	44	19	1.1	1.1
ANTHRACENE	(71)	71	19	1.1	1.1
FLUORANTHENE	170	(ND)	19	2.2	2.2
PYRENE	(ND)	8.2J	19	1.1	1.1
BENZO(A)ANTHRACENE	(ND)	ND	19	1.1	1.1
CHRYSENE	(62)	37	19	1.1	1.1
BENZO(B)FLUORANTHENE	(ND)	ND	19	2.2	2.2
BENZO(K)FLUORANTHENE	(21)	1.9J	19	1.1	1.1
BENZO(A)PYRENE	10J	(ND)	19	1.1	1.1
DIBENZO(A,H)ANTHRACENE	10J	(ND)	19	4.5	4.5
BENZO(G,H,I)PERYLENE	7.8J	(ND)	19	2.2	2.2
INDENO(1,2,3-CD)PYRENE	1.2J	(ND)	19	1.1	1.1

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
P-TERPHENYL-D14	(269*)	137*	50-130

RL: Reporting Limit
Left of | is related to UV detector; Right of | related to FL detector
Final result indicated by ( )
(*): Out of QC limit due to matrix interference

QC SUMMARIES

SW 35508/8310
POLYNUCLEAR AROMATIC HYDROCARBONS

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/18/05
Batch No.	: 05G055A	Date Extracted:	07/18/05 11:30
Sample ID	: MBLK1S	Date Analyzed:	07/19/05 12:59
Lab Samp ID	: PAG003WB	Dilution Factor:	1
Lab File ID	: RG19003A	Matrix :	SOIL
Ext Btch ID	: PAG003W	% Moisture :	NA
Calib. Ref.	: RG19002A	Instrument ID :	T-034

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)	
NAPHTHALENE	(ND)	ND	17	10	10
ACENAPHTHYLENE	(ND)	NA	17	8.1	NA
ACENAPHTHENE	(ND)	ND	17	10	10
FLUORENE	(ND)	ND	17	2	2
PHENANTHRENE	(ND)	ND	17	1	1
ANTHRACENE	(ND)	ND	17	1	1
FLUORANTHENE	(ND)	ND	17	2	2
PYRENE	(ND)	ND	17	1	1
BENZO(A)ANTHRACENE	(ND)	ND	17	1	1
CHRYSENE	(ND)	ND	17	1	1
BENZO(B)FLUORANTHENE	(ND)	ND	17	2	2
BENZO(K)FLUORANTHENE	(ND)	ND	17	1	1
BENZO(A)PYRENE	(ND)	ND	17	1	1
DIBENZO(A,H)ANTHRACENE	(ND)	ND	17	4	4
BENZO(G,H,I)PERYLENE	(ND)	ND	17	2	2
INDENO(1,2,3-CD)PYRENE	(ND)	ND	17	1	1

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
P-TERPHENYL-D14	(92)	81	50-130

RL: Reporting Limit
Left of | is related to UV detector; Right of | related to FL detector
Final result indicated by ( )

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G055A
METHOD: SW 3550B/8310

MATRIX: SOIL % MOISTURE: NA

DILUTION FACTOR:	1	1	1		
SAMPLE ID:	M8LK1S				
LAB SAMP ID:	PAG003WB	PAG003WL	PAG003WC		
LAB FILE ID:	RG19003A	RG19004A	RG19005A		
DATE EXTRACTED:	07/18/0511:30	07/18/0511:30	07/18/0511:30	DATE COLLECTED:	NA
DATE ANALYZED:	07/19/0512:59	07/19/0513:24	07/19/0513:50	DATE RECEIVED:	07/18/05
PREP. BATCH:	PAG003W	PAG003W	PAG003W		
CALIB. REF:	RG19002A	RG19002A	RG19002A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Naphthalene	(ND) | ND	1330	(1120) | 1040	(84) | 78	1330	(1140) | 1050	(86) | 79	(2) | 1	40-130	50
Acenaphthylene	(ND) | NA	2670	(2500) | NA	(94) | NA	2670	(2530) | NA	(95) | NA	(1) | NA	40-130	50
Acenaphthene	(ND) | ND	1330	(1210) | 1230	(91) | 92	1330	(1230) | 1230	(92) | 92	(2) | 0	40-130	50
Fluorene	(ND) | ND	267	(247) | 211	(93) | 79	267	(250) | 211	(94) | 79	(1) | 0	50-130	50
Phenanthrene	(ND) | ND	133	(126) | 108	(95) | 81	133	(127) | 108	(95) | 81	(1) | 0	50-130	50
Anthracene	(ND) | ND	133	(126) | 115	(95) | 86	133	(127) | 114	(95) | 86	(1) | 1	50-130	50
Fluoranthene	(ND) | ND	267	(272) | 240	(102) | 90	267	(273) | 239	(102) | 90	(0) | 0	50-130	50
Pyrene	(ND) | ND	133	(132) | 115	(99) | 86	133	(132) | 115	(99) | 86	(0) | 0	40-130	50
Benzo(a)anthracene	(ND) | ND	133	(132) | 120	(99) | 90	133	(131) | 120	(98) | 90	(1) | 0	50-130	50
Chrysene	(ND) | ND	133	(134) | 119	(101) | 89	133	(134) | 119	(101) | 89	(0) | 0	50-130	50
Benzo(b)fluoranthene	(ND) | ND	267	(269) | 245	(101) | 92	267	(270) | 244	(101) | 91	(0) | 0	50-130	50
Benzo(k)fluoranthene	(ND) | ND	133	(140) | 123	(105) | 92	133	(142) | 123	(107) | 92	(1) | 0	50-130	50
Benzo(a)pyrene	(ND) | ND	133	(138) | 123	(104) | 92	133	(140) | 123	(105) | 92	(1) | 0	50-130	50
Dibenzo(a,h)anthracene	(ND) | ND	267	(245) | 220	(92) | 82	267	(247) | 212	(93) | 79	(1) | 4	50-130	50
Benzo(g,h,i)perylene	(ND) | ND	267	(280) | 272	(105) | 102	267	(282) | 273	(106) | 102	(1) | 0	50-130	50
Indeno(1,2,3-cd)pyrene	(ND) | ND	133	(133) | 133	(100) | 100	133	(134) | 135	(101) | 102	(1) | 1	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
p-Terphenyl-d14	167	(157) | 138	(94) | 83	167	(157) | 137	(94) | 82	50-130

6009

~~No validation required~~
Shea

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 12396

CHAIN-OF-CUSTODY RECORD

PROJECT NAME: Site 16144	PURCHASE ORDER NO.: SES-TECH 055850
PROJECT LOCATION: Camp Pendleton	PROJECT NO.: 2973.0030.0005
SAMPLER NAME: Wendy Bryant	AIRBILL NUMBER: Courier
PROJECT CONTACT: Scuba Aleckson	PROJECT CONTACT PHONE NUMBER: 949-756-7549

LABORATORY NAME: EMAX

LABORATORY ID (FOR LABORATORY): 056-188

Project Information Section Do not submit to Laboratory

ANALYSES REQUIRED: VOCs + Oxygenates (EPA 8260B); EDB + DIPE + ETBE + TAME (EPA 8260B); PAHs (EPA 8270C); 1,4-Dioxane (EPA 8270C); 7/21/05

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
0003-055	7-21-05	0935	3	X		3	10 Day		Trip Blank			TB
0003-056	7-21-05	0945	5	X		3	10 Day		Equip Rinse			ER
0003-057	7-21-05	1042	5	X		3	10 Day		MW-3			Reg
0003-058	7-21-05	1135	5	X		3	10 Day		MW-4			Reg
0003-059	7-21-05	1256	5		X	3	10 Day		MW-5			Reg
0003-060	7-21-05	1305	5	X			10 Day		MW-5			Dup

RELINQUISHED BY (Signature)	DATE 7/21/05	RECEIVED BY (Signature)	
COMPANY TT	TIME 1530	COMPANY TTEC	
RELINQUISHED BY (Signature)	DATE 7-22-05	RECEIVED BY (Signature)	
COMPANY TTEC	TIME 9:45	COMPANY EMAX	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	

LABORATORY INSTRUCTIONS/COMMENTS

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT:
Groundwater Sampling

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

COPY

TABLE OF CONTENTS

CLIENT: **SES-TECH** CTO 0030

PROJECT: **CAMP PENDLETON, UST SITE 16144**

SDG: **05G188**

** - Not Requested

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-09-2005
EMAX Batch No.: 05G188

Attn: Sevda Aleckson

SES-TECH
1940 E. Deere Avenue, Suite 200
Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/22/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-055	G188-01	07/21/05	WATER	VOLATILE ORGANICS BY GC/MS
0003-056	G188-02	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM VOLATILE ORGANICS BY GC/MS TPH DIESEL
0003-057	G188-03	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM VOLATILE ORGANICS BY GC/MS TPH DIESEL
0003-058	G188-04	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM VOLATILE ORGANICS BY GC/MS TPH DIESEL
0003-059	G188-05	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM VOLATILE ORGANICS BY GC/MS TPH DIESEL
0003-060	G188-06	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM VOLATILE ORGANICS BY GC/MS TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-3696

NUMBER 12396

CHAIN-OF-CUSTODY RECORD

GI / VN09-21

05G188

PROJECT NAME	PURCHASE ORDER NO	LABORATORY NAME
SITE 16144	SES-TECH 055850	EMAX
PROJECT LOCATION	PROJECT NO	
Camp Pendleton	2973.0030.0005	
SAMPLER NAME	AIRBILL NUMBER	LABORATORY ID (FOR LABORATORY)
Wendy Bryant	Courier	05G188
PROJECT CONTACT	PROJECT CONTACT PHONE NUMBER	
Sevda Alekson	949-756-7549	

ANALYSES REQUIRED

	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	COMMENTS
1	0003-055	7-21-05	0935	3	X		W	10 Day	
2	0003-056	7-21-05	0945	5	X		W	10 Day	
3	0003-057	7-21-05	1042	5	X		W	10 Day	
4	0003-058	7-21-05	1135	5	X		W	10 Day	
5	0003-059	7-21-05	1256	5		X	W	10 Day	
6	0003-060	7-21-05	1305	5	X			10 Day	

7/21/05

RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	LABORATORY INSTRUCTIONS/COMMENTS
COMPANY T	TIME 1530	COMPANY TTEC	
RELINQUISHED BY (Signature)	DATE 7-22-05	RECEIVED BY (Signature)	COMPOSITE DESCRIPTION
COMPANY TTEC	TIME 9:45	COMPANY EMAX	T= 3.0, 3.5, 3.2, 3.6
RELINQUISHED BY (Signature)	DATE 7 22 05	RECEIVED BY (Signature)	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
COMPANY EMAX	TIME 1415	COMPANY EMAX	TEMPERATURE: ____ SAMPLE CONDITION: ☑ INTACT ☐ BROKEN COOLER SEAL: ☑ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

EMAX-SM02
Rev. 3
Appendix 2

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05 GT188
☑ EMAX Courier	SGE COC	Recepient	I PATEL
☐ Client Delivery		Date	7-22-05
☐ Third Party		Time	1415

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☐ Analysis Required
☑ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☐ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler S	☐ Box	☐	☐
Condition	☑ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ Plastic Bag
Temperatures	☑ Cooler 1 3.0°C	☑ Cooler 2 3.5°C	☑ Cooler 3 3.2°C	☑ Cooler 4 3.6°C
	☐ Cooler 5 _____	☐ Cooler 6 _____	☐ Cooler 7 _____	☐ Cooler 8 _____
	☐ Cooler 9 _____	☐ Cooler 10 _____	☐ Cooler 11 _____	☐ Cooler 12 _____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
		7-22-05	

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 7-22-05

SRF _____ Date 7/25/05

PM _____ Date 7/25/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

SDG#: 05G188

2000

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G188

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Six (6) water samples were received on 07/22/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3rd ed.

1. **Holding Time**

   Analytical holding time was met.

2. **Tuning and Calibration**

   Tuning and calibration were carried out at 12-hour interval. All QC requirements were met with the following exception:

Date	QC	Compound	Outlier	QCLimit
07/31/05	DCC	Acetone	30%	25%
07/31/05	DCC	Vinyl Acetate	32%	25%
08/01/05	DCC	Vinyl Acetate	160%	25%

3. **Method Blank**

   Method blanks were free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   Recoveries were within QC limit.

5. **Lab Control Sample/Lab Control Sample Duplicate**

   Recoveries were within QC limit.

6. **Matrix Spike/Matrix Spike Duplicate**

   No MS/MSD sample was designated in this SDG.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G188
Instrument ID : T-005

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Datetime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	V005G64Q	1	NA	07/31/0503:39	07/31/0503:39	RGQ761	RGQ142	V005G64	Method Blank
LCS1W	V005G64L	1	NA	07/31/0501:47	07/31/0501:47	RGQ758	RGQ142	V005G64	Lab Control Sample (LCS)
LCD1W	V005G64C	1	NA	07/31/0502:24	07/31/0502:24	RGQ759	RGQ142	V005G64	LCS Duplicate
0003-056	G188-02R	1	NA	07/31/0508:42	07/31/0508:42	RGQ769	RGQ142	V005G64	Field Sample
0003-057	G188-03R	1	NA	07/31/0509:20	07/31/0509:20	RGQ770	RGQ142	V005G64	Field Sample
MBLK2W	V005G68Q	1	NA	08/01/0504:56	08/01/0504:56	RGQ801	RGQ142	V005G68	Method Blank
LCS2W	V005G68L	1	NA	08/01/0503:02	08/01/0503:02	RGQ798	RGQ142	V005G68	Lab Control Sample (LCS)
LCD2W	V005G68C	1	NA	08/01/0503:40	08/01/0503:40	RGQ799	RGQ142	V005G68	LCS Duplicate
0003-055	G188-01R	1	NA	08/01/0510:35	08/01/0510:35	RGQ810	RGQ142	V005G68	Field Sample
0003-058	G188-04R	1	NA	08/01/0511:13	08/01/0511:13	RGQ811	RGQ142	V005G68	Field Sample
0003-059	G188-05R	1	NA	08/01/0511:51	08/01/0511:51	RGQ812	RGQ142	V005G68	Field Sample
0003-060	G188-06R	1	NA	08/01/0512:29	08/01/0512:29	RGQ813	RGQ142	V005G68	Field Sample

FN - Filename
% Moist - Percent Moisture

2002

SAMPLE RESULTS

2003

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	08/01/05 10:35
Sample ID:	0003-055	Date Analyzed:	08/01/05 10:35
Lab Samp ID:	G188-01R	Dilution Factor:	1
Lab File ID:	RG0810	Matrix	: WATER
Ext Btch ID:	V005G68	% Moisture	: NA
Calib. Ref.:	RG0142	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	65-135
TOLUENE-D8	84	75-125
BROMOFLUOROBENZENE	100	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2004

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/31/05 08:42
Sample ID:	0003-056	Date Analyzed:	07/31/05 08:42
Lab Samp ID:	G188-02R	Dilution Factor:	1
Lab File ID:	RGQ769	Matrix :	WATER
Ext Btch ID:	V005G64	% Moisture :	NA
Calib. Ref.:	RGQ142	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	83	65-135
TOLUENE-D8	82	75-125
BROMOFLUOROBENZENE	76	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2005

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/31/05 09:20
Sample ID:	0003-057	Date Analyzed:	07/31/05 09:20
Lab Samp ID:	G188-03R	Dilution Factor:	1
Lab File ID:	RGQ770	Matrix	: WATER
Ext Btch ID:	VQ05G64	% Moisture	: NA
Calib. Ref.:	RGQ142	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	.43J	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	.64	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	79	65-135
TOLUENE-D8	82	75-125
BROMOFLUOROBENZENE	85	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 08/01/05 11:13
Sample ID: 0003-058	Date Analyzed: 08/01/05 11:13
Lab Samp ID: G188-04R	Dilution Factor: 1
Lab File ID: RG0811	Matrix : WATER
Ext Btch ID: V005G68	% Moisture : NA
Calib. Ref.: RG0142	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	.24J	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	107	65-135
TOLUENE-D8	81	75-125
BROMOFLUOROBENZENE	91	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2007

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch.No. : 05G188	Date Extracted: 08/01/05 11:51
Sample ID: 0003-059	Date Analyzed: 08/01/05 11:51
Lab Samp ID: G188-05R	Dilution Factor: 1
Lab File ID: RGQ812	Matrix : WATER
Ext Btch ID: VQ05G68	% Moisture : NA
Calib. Ref.: RGQ142	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	5.4J	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	17J	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	.77J	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	.37J	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	101	65-135
TOLUENE-D8	82	75-125
BROMOFLUOROBENZENE	90	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2008

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 08/01/05 12:29
Sample ID: 0003-060	Date Analyzed: 08/01/05 12:29
Lab Samp ID: G188-06R	Dilution Factor: 1
Lab File ID: RG0813	Matrix : WATER
Ext Btch ID: V005G68	% Moisture : NA
Calib. Ref.: RG0142	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	12J	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	.71J	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	65-135
TOLUENE-D8	81	75-125
BROMOFLUOROBENZENE	86	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2014

QC SUMMARIES

2015

QC DATA

2016

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	NA
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/31/05
Batch No.	: 05G188	Date Extracted:	07/31/05 03:39
Sample ID:	MBLK1W	Date Analyzed:	07/31/05 03:39
Lab Samp ID:	V005G64Q	Dilution Factor:	1
Lab File ID:	RGQ761	Matrix :	WATER
Ext Btch ID:	V005G64	% Moisture :	NA
Calib. Ref.:	RGQ142	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	85	65-135
TOLUENE-D8	89	75-125
BROMOFLUOROBENZENE	94	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2017

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G188
METHOD: SW 5030B/8260B

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: V005G64Q V005G64L V005G64C
LAB FILE ID: RGQ761 RGQ758 RGQ759
DATE EXTRACTED: 07/31/0503:39 07/31/0501:47 07/31/0502:24 DATE COLLECTED: NA
DATE ANALYZED: 07/31/0503:39 07/31/0501:47 07/31/0502:24 DATE RECEIVED: 07/31/05
PREP. BATCH: V005G64 V005G64 V005G64
CALIB. REF: RGQ142 RGQ142 RGQ142

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	10	8.64	86	10	8.27	83	4	75-125	20
Benzene	ND	10	10.9	109	10	10.6	106	3	75-125	20
Chlorobenzene	ND	10	10.6	106	10	10.1	101	5	75-125	20
Toluene	ND	10	11.5	115	10	11	110	5	75-125	20
Trichloroethene	ND	10	10.2	102	10	9.72	97	5	75-125	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10	8.39	84	10	8.19	82	65-135
Toluene-d8	10	8.13	81	10	8.18	82	75-125
Bromofluorobenzene	10	8.52	85	10	8.77	88	75-125

2018

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 08/01/05
Batch No. : 05G188	Date Extracted: 08/01/05 04:56
Sample ID: MBLK2W	Date Analyzed: 08/01/05 04:56
Lab Samp ID: V005G68Q	Dilution Factor: 1
Lab File ID: RGQ801	Matrix : WATER
Ext Btch ID: V005G68	% Moisture : NA
Calib. Ref.: RGQ142	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	65-135
TOLUENE-D8	80	75-125
BROMOFLUOROBENZENE	98	75-125

R.L. : Reporting limit
* : Out of QC
E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

2019

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G188
METHOD: SW 5030B/8260B

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	V005G68Q	V005G68L	V005G68C		
LAB FILE ID:	RGQ801	RGQ798	RGQ799		
DATE EXTRACTED:	08/01/0504:56	08/01/0503:02	08/01/0503:40	DATE COLLECTED:	NA
DATE ANALYZED:	08/01/0504:56	08/01/0503:02	08/01/0503:40	DATE RECEIVED:	08/01/05
PREP. BATCH:	V005G68	V005G68	V005G68		
CALIB. REF:	RGQ142	RGQ142	RGQ142		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	10	9.16	92	10	8.99	90	2	75-125	20
Benzene	ND	10	10.2	102	10	10.3	103	1	75-125	20
Chlorobenzene	ND	10	10.1	101	10	10.1	101	0	75-125	20
Toluene	ND	10	10.8	108	10	10.8	108	0	75-125	20
Trichloroethene	ND	10	9.79	98	10	9.82	98	0	75-125	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10	9.48	95	10	9.32	93	65-135
Toluene-d8	10	7.98	80	10	8	80	75-125
Bromofluorobenzene	10	8.6	86	10	8.48	85	75-125

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 05G188

3000

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G188

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Five (5) water samples were received on 07/22/05 for Semi Volatile Organic analysis by Method 3520C/8270C SIM in accordance with USEPA SW846, 3rd ed.

1. **Holding Time**

   Analytical holding time was met.

2. **Tuning and Calibration**

   Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. **Method Blank**

   Method blank was free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   Recoveries were within QC limit.

5. **Lab Control Sample/Lab Control Sample Duplicate**

   Recoveries were within QC limit.

6. **Matrix Spike/Matrix Spike Duplicate**

   No MS/MSD sample was designated in this SDG.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
SEMI VOLATILE ORGANICS BY GC/MS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
SDG NO. : 05G188
Instrument ID : T-052

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	SVG026WB	1	NA	08/04/0500:15	07/28/0518:30	RHK036	RHK008	SVG026W	Method Blank
LCS1W	SVG026WL	1	NA	08/04/0500:37	07/28/0518:30	RHK037	RHK008	SVG026W	Lab Control Sample (LCS)
LCD1W	SVG026WC	1	NA	08/04/0500:58	07/28/0518:30	RHK038	RHK008	SVG026W	LCS Duplicate
0003-056	G188-02	.96	NA	08/04/0501:20	07/28/0518:30	RHK039	RHK008	SVG026W	Field Sample
0003-057	G188-03	1	NA	08/04/0501:42	07/28/0518:30	RHK040	RHK008	SVG026W	Field Sample
0003-058	G188-04	.97	NA	08/04/0502:04	07/28/0518:30	RHK041	RHK008	SVG026W	Field Sample
0003-059	G188-05	.99	NA	08/04/0502:26	07/28/0518:30	RHK042	RHK008	SVG026W	Field Sample
0003-060	G188-06	.99	NA	08/04/0502:47	07/28/0518:30	RHK043	RHK008	SVG026W	Field Sample

FN - Filename
% Moist - Percent Moisture

EMAX

SAMPLE RESULTS

3003

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:30
Sample ID:	0003-056	Date Analyzed:	08/04/05 01:20
Lab Samp ID:	G188-02	Dilution Factor:	.96
Lab File ID:	RHK039	Matrix :	WATER
Ext Btch ID:	SVG026W	% Moisture :	NA
Calib. Ref.:	RHK008	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.96	.19
ACENAPHTHYLENE	ND	.96	.19
ANTHRACENE	ND	1.9	.19
BENZO(A)ANTHRACENE	ND	1.9	.19
BENZO(A)PYRENE	ND	.96	.19
BENZO(B)FLUORANTHENE	ND	.96	.19
BENZO(K)FLUORANTHENE	ND	1.9	.19
BENZO(G,H,I)PERYLENE	ND	.96	.19
CHRYSENE	ND	1.9	.19
DIBENZO(A,H)ANTHRACENE	ND	.96	.19
FLUORANTHENE	ND	1.9	.19
FLUORENE	ND	1.9	.19
INDENO(1,2,3-CD)PYRENE	ND	.96	.19
NAPHTHALENE	ND	.96	.19
PHENANTHRENE	ND	.96	.19
PYRENE	ND	1.9	.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	69	50-130

RL: Reporting Limit

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:30
Sample ID:	0003-057	Date Analyzed:	08/04/05 01:42
Lab Samp ID:	G188-03	Dilution Factor:	1
Lab File ID:	RHK040	Matrix	: WATER
Ext Btch ID:	SVG026W	% Moisture	: NA
Calib. Ref.:	RHK008	Instrument ID	: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	ND	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	ND	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	72	50-130

RL: Reporting Limit

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: 0003-058	Date Analyzed: 08/04/05 02:04
Lab Samp ID: G188-04	Dilution Factor: .97
Lab File ID: RHK041	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHK008	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.97	.19
ACENAPHTHYLENE	ND	.97	.19
ANTHRACENE	ND	1.9	.19
BENZO(A)ANTHRACENE	ND	1.9	.19
BENZO(A)PYRENE	ND	.97	.19
BENZO(B)FLUORANTHENE	ND	.97	.19
BENZO(K)FLUORANTHENE	ND	1.9	.19
BENZO(G,H,I)PERYLENE	ND	.97	.19
CHRYSENE	ND	1.9	.19
DIBENZO(A,H)ANTHRACENE	ND	.97	.19
FLUORANTHENE	ND	1.9	.19
FLUORENE	ND	1.9	.19
INDENO(1,2,3-CD)PYRENE	ND	.97	.19
NAPHTHALENE	ND	.97	.19
PHENANTHRENE	ND	.97	.19
PYRENE	ND	1.9	.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	80	50-130

RL: Reporting Limit

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:30
Sample ID	: 0003-059	Date Analyzed:	08/04/05 02:26
Lab Samp ID	: G188-05	Dilution Factor:	.99
Lab File ID	: RHK042	Matrix	: WATER
Ext Btch ID	: SVG026W	% Moisture	: NA
Calib. Ref.	: RHK008	Instrument ID	: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.99	.2
ACENAPHTHYLENE	ND	.99	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	.99	.2
BENZO(B)FLUORANTHENE	ND	.99	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	.99	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	.99	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	.99	.2
NAPHTHALENE	ND	.99	.2
PHENANTHRENE	ND	.99	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	73	50-130

RL: Reporting Limit

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: 0003-060	Date Analyzed: 08/04/05 02:47
Lab Samp ID: G188-06	Dilution Factor: .99
Lab File ID: RHK043	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHK008	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.99	.2
ACENAPHTHYLENE	ND	.99	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	.99	.2
BENZO(B)FLUORANTHENE	ND	.99	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	.99	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	.99	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	.99	.2
NAPHTHALENE	ND	.99	.2
PHENANTHRENE	ND	.99	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	67	50-130

RL: Reporting Limit

QC SUMMARIES

3011

SW 3520C/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/28/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: MBLK1W	Date Analyzed: 08/04/05 00:15
Lab Samp ID: SVG026WB	Dilution Factor: 1
Lab File ID: RHK036	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHK008	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	ND	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	ND	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	83	50-130

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G188
METHOD: SW 3520C/8270C SIM

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	SVG026WB	SVG026WL	SVG026W8		
LAB FILE ID:	RHK036	RHK037	RHK038		
DATE EXTRACTED:	07/28/0518:30	07/28/0518:30	07/28/0518:30	DATE COLLECTED:	NA
DATE ANALYZED:	08/04/0500:15	08/04/0500:37	08/04/0500:58	DATE RECEIVED:	07/28/05
PREP. BATCH:	SVG026W	SVG026W	SVG026W		
CALIB. REF:	RHK008	RHK008	RHK008		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	10	8.02	80	10	7.87	79	2	40-130	30
Acenaphthylene	ND	10	8.74	87	10	8.51	85	3	40-130	30
Anthracene	ND	10	7.8	78	10	7.5	75	4	50-130	30
Benzo(a)anthracene	ND	10	8.44	84	10	8.22	82	3	50-130	30
Benzo(a)pyrene	ND	10	8.42	84	10	8.45	84	0	50-130	30
Benzo(b)fluoranthene	ND	10	8.14	81	10	8.5	85	4	50-130	30
Benzo(k)fluoranthene	ND	10	8	80	10	7.29	73	9	30-150	30
Benzo(g,h,i)perylene	ND	10	8.28	83	10	8.2	82	1	50-130	30
Chrysene	ND	10	8.49	85	10	8.64	86	2	50-130	30
Dibenzo(a,h)anthracene	ND	10	8.3	83	10	8.24	82	1	40-140	30
Fluoranthene	ND	10	8.24	82	10	8.04	80	2	50-130	30
Fluorene	ND	10	8.54	85	10	8.61	86	1	40-130	30
Indeno(1,2,3-cd)pyrene	ND	10	7.67	77	10	7.95	79	3	30-140	30
Naphthalene	ND	10	7.17	72	10	6.95	69	3	30-130	30
Phenanthrene	ND	10	7.49	75	10	7.27	73	3	40-130	30
Pyrene	ND	10	8.5	85	10	8.25	82	3	40-130	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Terphenyl-d14	10	8.49	85	10	8.19	82	50-130

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G188

5000

EMAX LABORATORIES, INC.

CASE NARRATIVE

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 16144

SDG: 05G188

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Five (5) water samples were received on 07/22/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3520C/8015B in accordance with SW846 3RD Edition.

1. **Holding Time**

   Analytical holding time was met. Extraction was performed on 07/28/05 and completed on 07/29/05.

2. **Calibration**

   Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. **Method Blank**

   Method blank was free of contamination at half of the reporting limit.

4. **Surrogate Recovery**

   All recoveries were within QC limits.

5. **Lab Control Sample/Lab Control Sample Duplicate**

   All recoveries were within QC limits.

6. **Matrix Spike/Matrix Spike Duplicate**

   No sample was designated for MS/MSD.

7. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

   Samples G188-03 to –06 displayed motor oil-like fuel pattern.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144

SDG NO. : 05G188
Instrument ID : GCT05D

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSG039WB	1	NA	07/31/0514:40	07/28/0518:00	TG28098A	TG28089A	DSG039W	Method Blank
LCS1W	DSG039WL	1	NA	07/31/0513:16	07/28/0518:00	TG28096A	TG28089A	DSG039W	Lab Control Sample (LCS)
LCD1W	DSG039WC	1	NA	07/31/0513:58	07/28/0518:00	TG28097A	TG28089A	DSG039W	LCS Duplicate
0003-056	G188-02	.94	NA	07/31/0515:22	07/28/0518:00	TG28099A	TG28089A	DSG039W	Field Sample
0003-057	G188-03	1	NA	07/31/0516:04	07/28/0518:00	TG28100A	TG28089A	DSG039W	Field Sample
0003-058	G188-04	.97	NA	07/31/0518:10	07/28/0518:00	TG28103A	TG28101A	DSG039W	Field Sample
0003-059	G188-05	1	NA	07/31/0518:52	07/28/0518:00	TG28104A	TG28101A	DSG039W	Field Sample
0003-060	G188-06	1.02	NA	07/31/0519:34	07/28/0518:00	TG28105A	TG28101A	DSG039W	Field Sample

FN - Filename
% Moist - Percent Moisture

EMAX LABORATORIES, INC.

SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:00
Sample ID:	0003-056	Date Analyzed:	07/31/05 15:22
Lab Samp ID:	G188-02	Dilution Factor:	.94
Lab File ID:	TG28099A	Matrix	: WATER
Ext Btch ID:	DSG039W	% Moisture	: NA
Calib. Ref.:	TG28089A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.094	.024

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	82	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

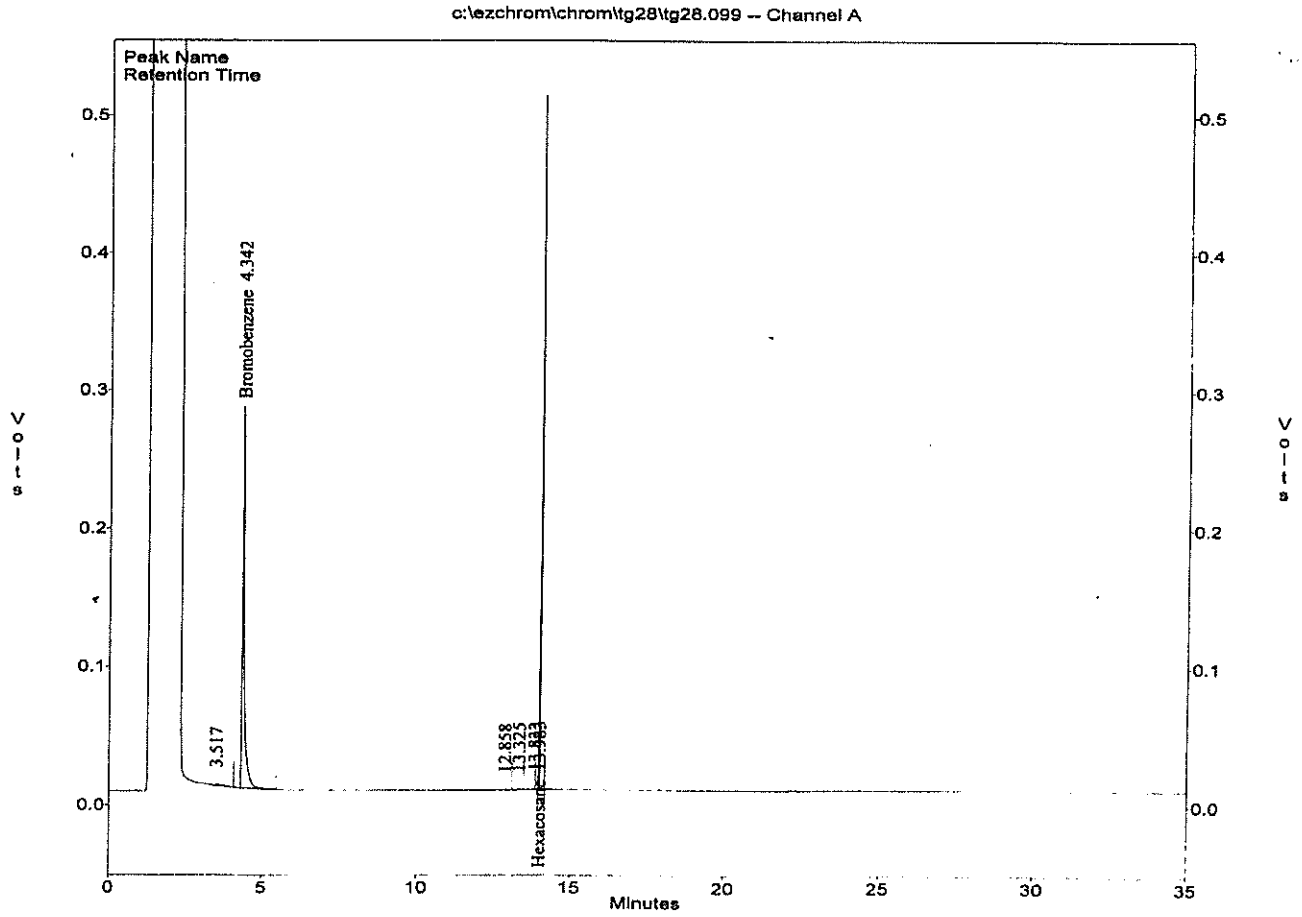
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.099
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G188-02
Acquired : Jul 31, 2005 15:22:25
Printed : Aug 01, 2005 12:10:40
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342	1260460	16597.4	75.9
6	Hexacosane	13.983	646820	31504.4	20.5
G1	Diesel(TOTAL)		28931	25205.2	1.1
G2	Diesel(C10-C24)		4574	25139.0	0.2
G3	Diesel(C10-C28)		6424	25150.4	0.3



5005

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:00
Sample ID:	0003-057	Date Analyzed:	07/31/05 16:04
Lab Samp ID:	G188-03	Dilution Factor:	1
Lab File ID:	TG28100A	Matrix	: WATER
Ext Btch ID:	DSG039W	% Moisture	: NA
Calib. Ref.:	TG28089A	Instrument ID	: GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	.27	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	96	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

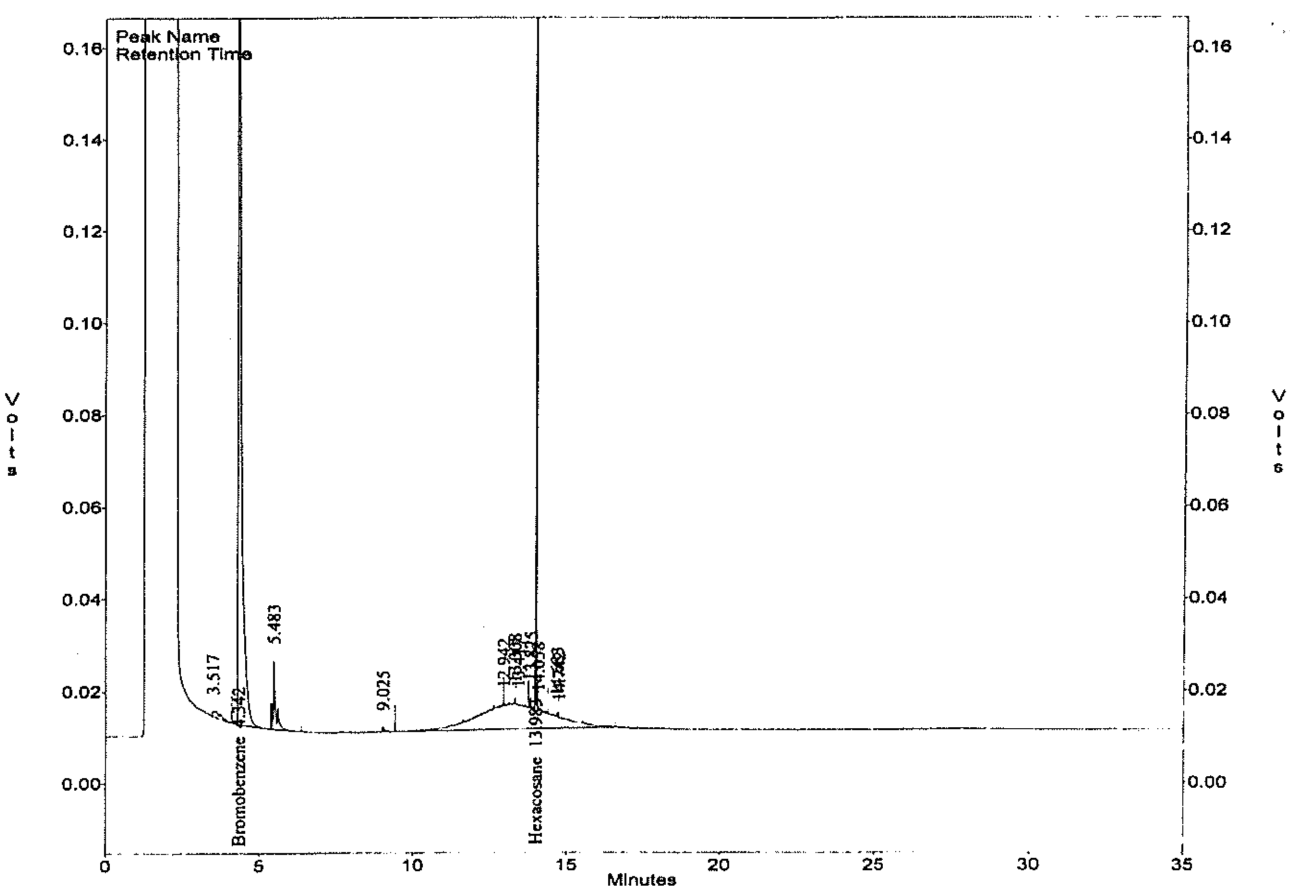
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.100
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G188-03
Acquired : Jul 31, 2005 16:04:26
Printed : Aug 01, 2005 12:12:59
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342	1541161	16597.4	92.9
9	Hexacosane	13.983	759713	31504.4	24.1
G1	Diesel(TOTAL)		919832	25205.2	36.5
G2	Diesel(C10-C24)		680000	25139.0	27.0
G3	Diesel(C10-C28)		896256	25150.4	35.6

c:\ezchrom\chrom\tg28\tg28.100 -- Channel A



5007
38.01.05

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:00
Sample ID: 0003-058	Date Analyzed: 07/31/05 18:10
Lab Samp ID: G188-04	Dilution Factor: .97
Lab File ID: TG28103A	Matrix : WATER
Ext Btch ID: DSG039W	% Moisture : NA
Calib. Ref.: TG28101A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	4.9 /	.097	.024

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	116	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

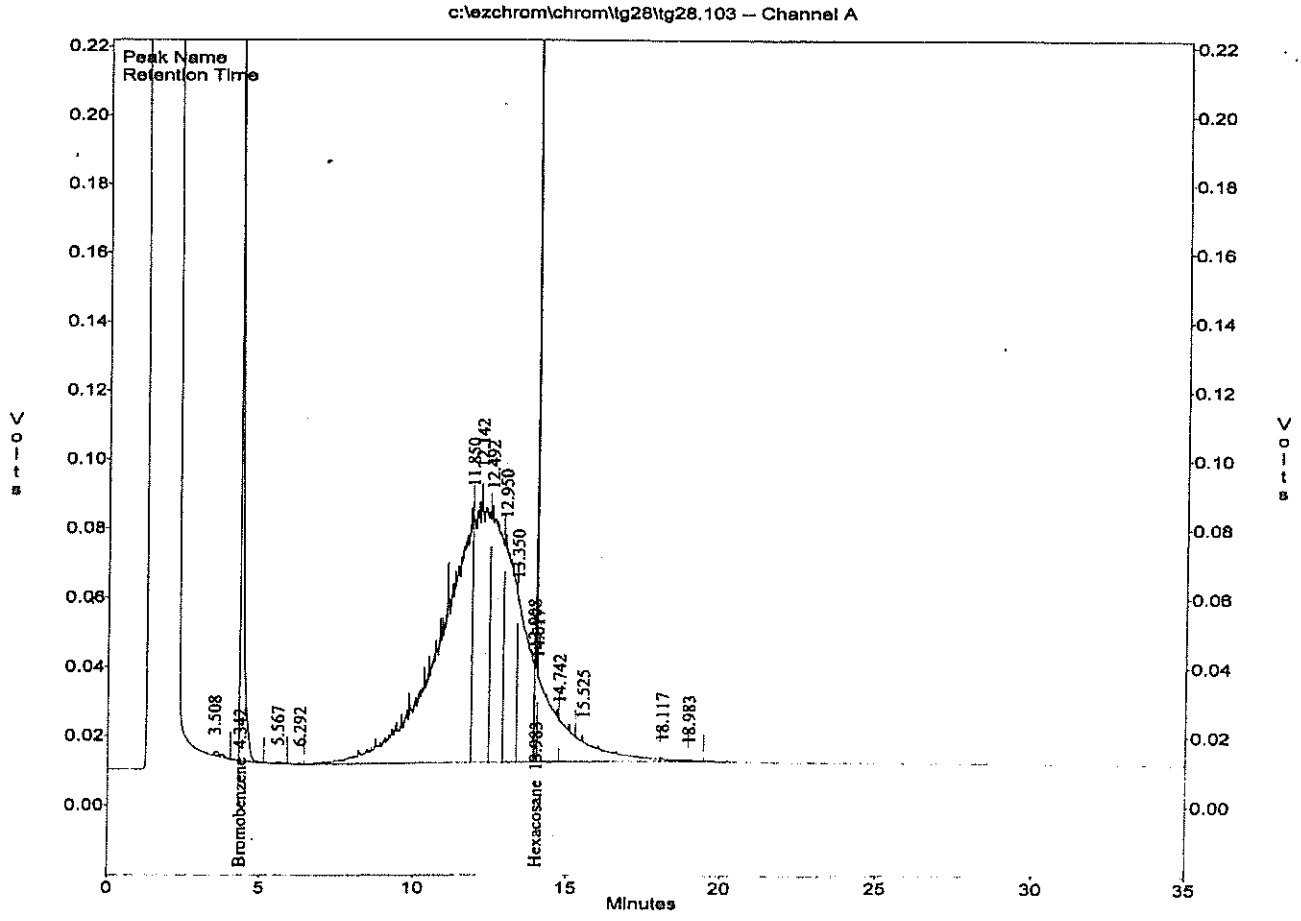
5008

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.103
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G188-04
Acquired : Jul 31, 2005 18:10:21
Printed : Aug 01, 2005 12:14:34
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342	1440031	16597.4	86.8
11	Hexacosane	13.983	917003	31504.4	29.1
G1	Diesel(TOTAL)		13542613	25205.2	537.3
G2	Diesel(C10-C24)		12677107	25139.0	504.3
G3	Diesel(C10-C28)		13029986	25150.4	518.1



5009
8-01-05

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:00
Sample ID:	0003-059	Date Analyzed:	07/31/05 18:52
Lab Samp ID:	G188-05	Dilution Factor:	1
Lab File ID:	TG28104A	Matrix :	WATER
Ext Btch ID:	DSG039W	% Moisture :	NA
Calib. Ref.:	TG28101A	Instrument ID :	GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	5.7	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	112	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

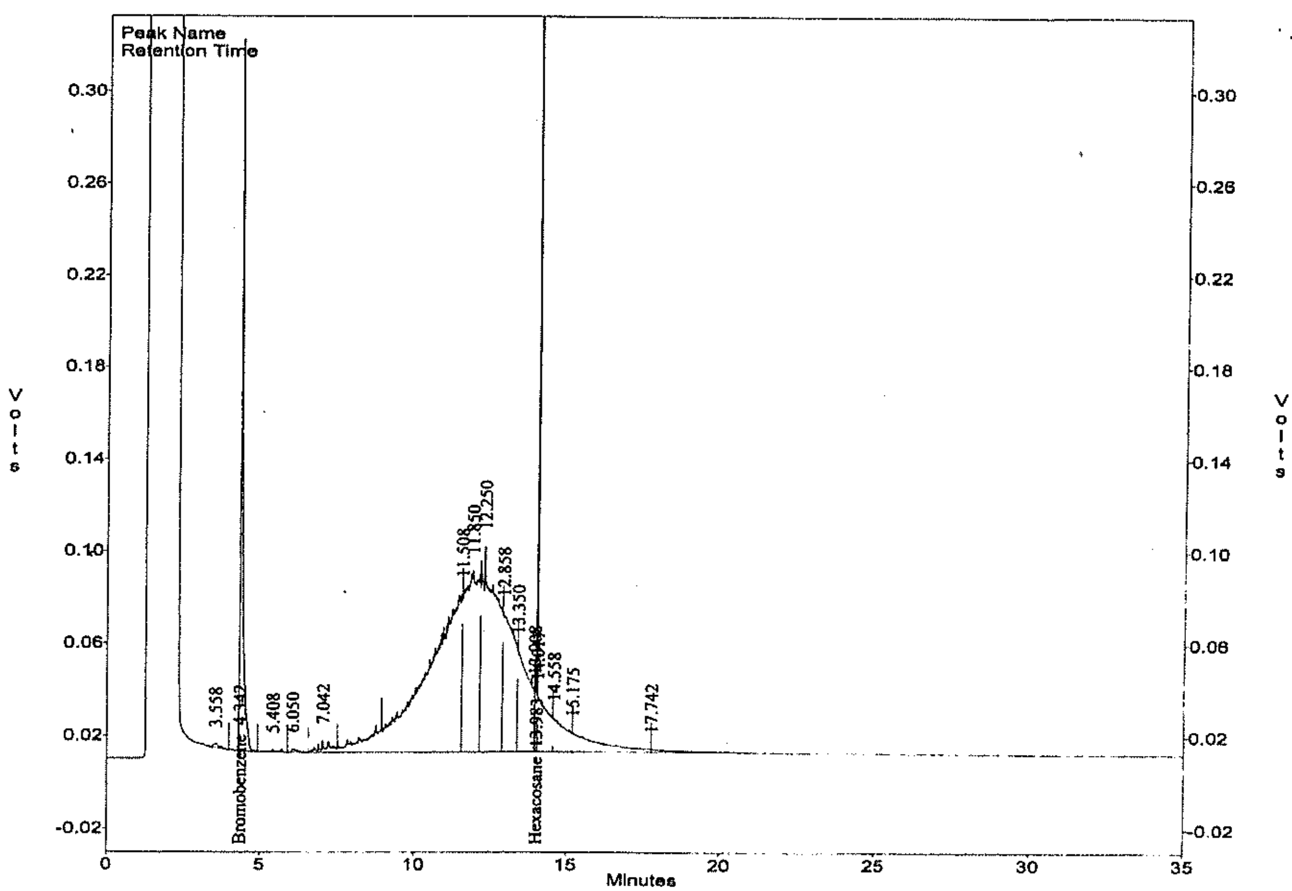
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.104
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G188-05
Acquired : Jul 31, 2005 18:52:25
Printed : Aug 01, 2005 12:22:00
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342	1400708	16597.4	84.4
12	Hexacosane	13.983	879265	31504.4	27.9
G1	Diesel(TOTAL)		15296545	25205.2	606.9
G2	Diesel(C10-C24)		14206475	25139.0	565.1
G3	Diesel(C10-C28)		14683678	25150.4	583.8

c:\ezchrom\chrom\tg28\tg28.104 -- Channel A



5011

Sok-2-05

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: SES-TECH	Date Collected:	07/21/05
Project	: CAMP PENDLETON, UST SITE 16144	Date Received:	07/22/05
Batch No.	: 05G188	Date Extracted:	07/28/05 18:00
Sample ID:	0003-060	Date Analyzed:	07/31/05 19:34
Lab Samp ID:	G188-06	Dilution Factor:	1.02
Lab File ID:	TG28105A	Matrix :	WATER
Ext Btch ID:	DSG039W	% Moisture :	NA
Calib. Ref.:	TG28101A	Instrument ID :	GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	6.3	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	116	65-135

RL : Reporting Limit

Parameter	H-C Range
Diesel	C10-C24

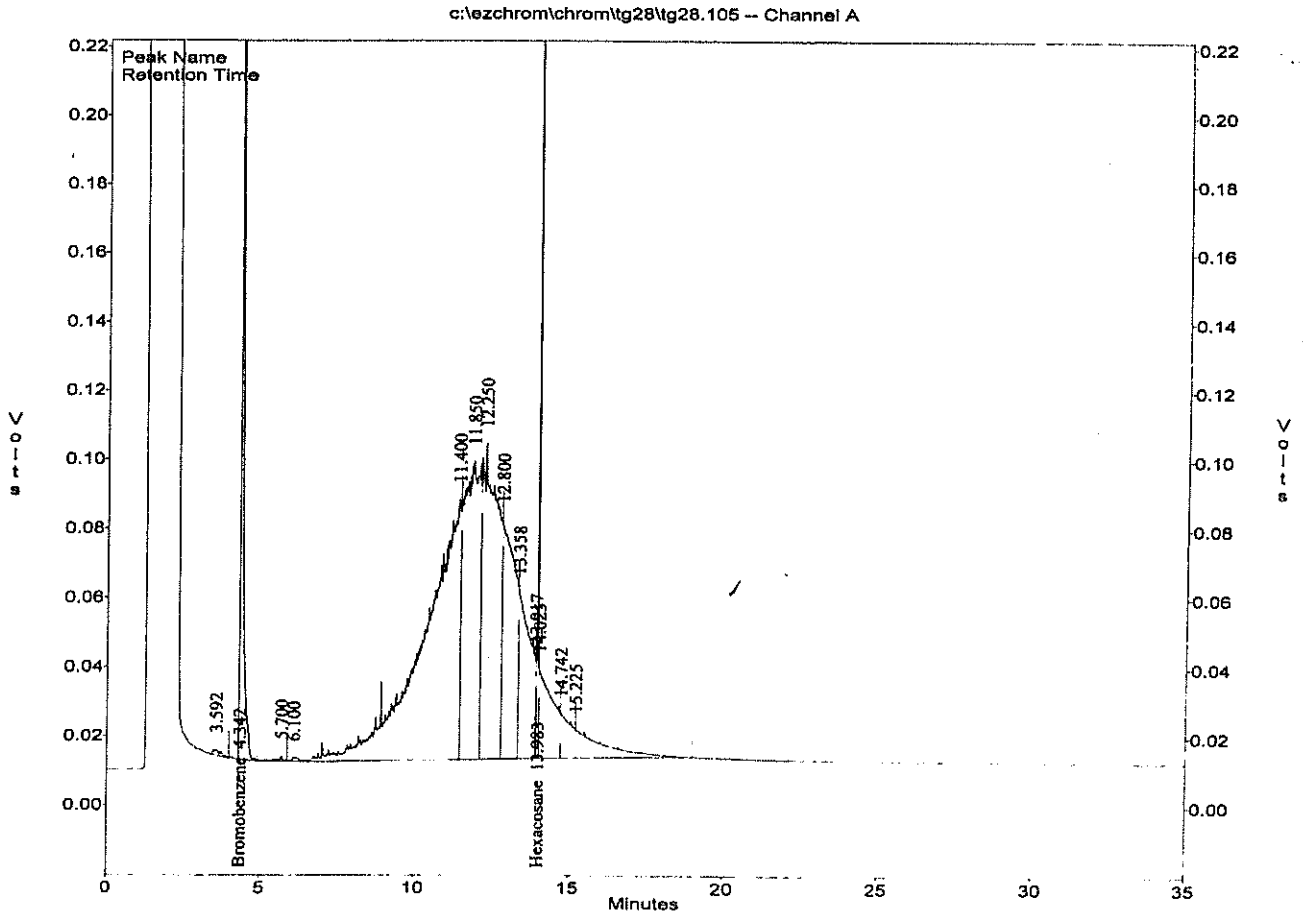
			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.105
Method : c:\ezchrom\methods\ds50c31.met
Sample ID : 05G188-06
Acquired : Jul 31, 2005 19:34:27
Printed : Aug 01, 2005 14:56:30
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342	1365060	16597.4	82.2
11	Hexacosane	13.983	911714	31504.4	28.9
G1	Diesel(TOTAL)		16515544	25205.2	655.2
G2	Diesel(C10-C24)		15589428	25139.0	620.1
G3	Diesel(C10-C28)		15952065	25150.4	634.3



5013

QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/28/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:00
Sample ID: MBLK1W	Date Analyzed: 07/31/05 14:40
Lab Samp ID: DSG039WB	Dilution Factor: 1
Lab File ID: TG28098A	Matrix : WATER
Ext Btch ID: DSG039W	% Moisture : NA
Calib. Ref.: TG28089A	Instrument ID : GCT050

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	82	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63-165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%

5015

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 16144
BATCH NO.: 05G188
METHOD: METHOD 3520C/8015B

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	DSG039WB	DSG039WL	DSG039WC		
LAB FILE ID:	TG28098A	TG28096A	TG28097A		
DATE EXTRACTED:	07/28/0518:00	07/28/0518:00	07/28/0518:00	DATE COLLECTED:	NA
DATE ANALYZED:	07/31/0514:40	07/31/0513:16	07/31/0513:58	DATE RECEIVED:	07/28/05
PREP. BATCH:	DSG039W	DSG039W	DSG039W		
CALIB. REF:	TG28089A	TG28089A	TG28089A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	5	5.74	115	5	5.29	106	8	65-135	30

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT (%)
Hexacosane	.25	.238	95	.25	.226	91	65-135